New Distribution Capability Standards

Implementation Guide 2.0

Simplifying the Business
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Foreword

In developing the IATA standard for the New Distribution Capability (NDC), it has become apparent that there are a number of items which, whilst not appropriate for inclusion in the text of the standard, are fundamental to obtain a clear understanding of how NDC could be implemented. Thus there is significant benefit in documenting these, to promote a common understanding of the ways in which NDC can be implemented.

Consequently, this Implementation Guide provides clarifications and explanations of the concepts and scope underpinning NDC.

This publication is intended for business, operations and technology individuals considering or actually involved in the implementation of systems and processes that will utilize NDC standards, whether they be an Airline, Seller or Aggregator. It describes best practice processes of the standards in a simplified manner and does not enter schema-specific details such as the actual element and attribute names, as found in the schemas’ data structure – rather, it aims to complement the explanation of process flows with high-level illustrations of messages designed to be easily comprehensible to first-time adopters of the standards.

However, it should be noted that this publication is not a binding document - the formal texts relating to NDC are contained in the appropriate Resolutions and Recommended Practices adopted by the IATA Passenger Services Conference.

This second edition of the guide has been produced by the PDMG Implementation Guide Task Force set up to oversee the revision and updating of the previous 1.0 Implementation Guide.

The Implementation Guide Task Force was established in April 2015 during the PDMG-WG9 meeting. Many individuals contributed to the development and provided valuable subject matter expertise to update and enhance this publication.

Questions or comments should be directed to NDC_Imp_Guide@iata.org
Notice

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The NDC Implementation Guide

This NDC Implementation Guide is published pursuant to IATA Passenger Services Resolution (PSC) 787, adopted by the IATA Passenger Services Conference during its 18-19 October 2012 meeting in Abu Dhabi. The United States Department of Transportation (DOT) in granting final approval of Resolution 787 on 7 August 2014, accepted a set of conditions jointly submitted by IATA and Open Allies for Airfare Transparency. These conditions clarify the intended application of Resolution 787, and apply to all airlines globally that wish to implement NDC (DOT’s final order approving Resolution 787 and the accompanying conditions can be found using the following URL:


This guide was produced by IATA’s NDC team, with support and collaboration of the Distribution Data Exchange Working Groups.

This document aims to:

- Present the NDC program vision, objectives, benefits and scope
- Illustrate how Airlines and their partners can use the NDC standard
- Explain details of the standard
- Show examples of how the NDC standard might be implemented

This implementation guide is for general use, and is publically available on IATA’s NDC website at http://www.iata.org/ndc.

This document looks at NDC essentially through the lens of the Airline stakeholder. IATA’s goal over time will be to complete it by including additional perspectives from other stakeholders. To this end we would welcome feedback that would enable us to enrich the views from the perspective of Sellers, IT providers and others.
# About the NDC Implementation Guide

## 1.1 Structure of the NDC Implementation Guide

The NDC Implementation Guide supports companies in the process of implementing NDC. Therefore the guide contains an explanation of the NDC environment and guidance as to how to develop potential elements of an NDC project (without presuming to define what a project should cover).

This guide is divided into five sections. The first two sections give a high level view of NDC in the Airline context. The later sections provide technical information to support a team considering developing or implementing systems based on the NDC Standard.

The first section of the guide contains explanatory notes on the guide itself, and other information useful to understanding the context of the material in the guide.

The second section informs the reader of NDC’s scope. There is also a commentary on the opportunities NDC presents for Airlines.

The third section drills down into related functions that NDC supports, which includes:

- Shopping (Offer Management)
- Airline Profile
- Order Management – Booking & Servicing
- Order Management – Payment & Ticketing
- Interline

The fourth section is where the guide gets more technical. This section explains important technical concepts and also discusses the design considerations taken into account during the development of NDC.

Servicing is not covered in detail – this is introduced in the Order Management section, and will be covered fully in the next version of the guide.

Each section provides definitions for terminology used in NDC. The sections continue with a commentary of all the messages associated with that function. This is followed by some scenarios showing the flow of messages used to achieve a business objective in the specified domain.
The final major section covers implementation support. The section outlines how an Airline could go about defining its NDC project(s) and what to take into consideration when doing that.

The Appendices section covers reference material, including a glossary, as well as legal considerations and guidelines for the protection of Personal Data.
2 Vision and Objectives for NDC

2.1 Introducing NDC

NDC (New Distribution Capability) is a travel industry-supported program (NDC Program) launched by IATA for the development and market adoption of a new XML-based data transmission standard (NDC Standard). The NDC Standard will enhance the capability of communications between Airlines and Sellers, and support personalization in the Offers Airlines can make.

The NDC Standard will enable the travel industry to transform the way air products are retailed to corporations and to leisure and business travelers by addressing the industry's current distribution limitations, including but not limited to:

- Product differentiation
- Time-to-market
- Access to full and rich air content
- Transparent shopping experience

The NDC Standard will enable an Airline to make sales Offers to 'Sellers' without those Offers being prepared by a third party intermediary. These Offers can be aligned in terms of their content and pricing to real-time inventories rather than being based upon previously filed products (e.g. dynamic pricing and bundling) and may or may not be personalized. It also enables an Airline to directly manage other components of the indirect distribution process such as the opportunity to complete the transaction, create the booking record (known as the “Order”), issue the document(s) and respond with confirmations – should it choose to do so.

For the latest news on NDC, visit our home page (http://www.iata.org/ndc). You can also access our Educational Videos online though the IATAtv channel.
The following diagrams describe the high level distribution process in today’s world, and how it could evolve with the implementation of the NDC Standard:

**Flight Distribution today**

**Air Retailing tomorrow**

If you would like to read more about the NDC Strategy, you can find more information here:


The following URL can be used to access all the latest information and news on the NDC Program.

[http://www.iata.org/ndc](http://www.iata.org/ndc)
The NDC Standard, like all IATA standards from the Passenger Service Conference, **is available on an open and voluntary basis** to any third party, intermediary, IT provider or non-IATA member, to implement and use. The NDC Program was initiated in 2012 and is currently coming to the end of its development phase. The first market deployments took place in 2015.

**2.2 Scope of NDC**

Structured around key functional domains, the **NDC schemas** provide the opportunity to enhance the end-to-end Airline distribution process, including Shopping and Order Management, to deliver enhanced customer experiences.

**NDC Shopping**

The **NDC Shopping** schemas enable Airlines to distribute their full product Offers and to merchandize their ancillary services, using rich content, in either an anonymous or personalized manner.

**NDC Airline Profile**

The **NDC Airline Profile** schemas provide the ability for an Airline to communicate which Shopping requests it is willing to receive, and has the capability to respond to. Whilst optional, these schemas are a way an Airline could manage the volume of requests they receive.

**NDC Order Management**

The **NDC Order Management** schemas enable Airlines to manage NDC-driven Orders throughout the entire lifecycle, from booking to payment, ticketing and servicing. It is composed of:

- The schemas for **Booking & Servicing**, to enable Airlines and Sellers to manage the Order from the traveler, once he/she has selected an Offer, and perform servicing at any point throughout the Order lifecycle.

- The schemas for **Payment & Ticketing**, to enable Airlines and Sellers to collect and pass forms of payment details for the supported methods, as offered by the Airlines and selected by the traveler; these schemas will also allow Sellers to request accountable documents issuance to fulfill NDC-driven Orders.

**Interline**

The **NDC Shopping** and **NDC Order Management** schemas will also enable Airlines to send requests for Offers to their interline partners, and manage the resulting booking and servicing, including for ancillary products.
NDC is much more than replacing EDIFACT messages with XML, it offers the opportunity to change roles and responsibilities. For instance under NDC, Airlines may choose to construct the product, service and fare offers to be sent to the Sellers. By adopting these new roles, moving the responsibility for producing the Offer from the GDS to the Airline, i.e. from an intermediary to the service provider, utilizing NDC would give an Airline real time flexibility on what its Offers will contain, in terms of price, product and conditions.

NDC will enable more dynamism in the mechanisms that could be used to create Offers for the end customers. One of those mechanisms is the personalization of shopping. Under NDC, personalized shopping will allow Airlines to tailor Offers made through the indirect channel using the personal details the end customer is willing to share. This enables the alignment of the range of Offers available to end customers through the indirect channel with what has been available through Airlines’ own websites.

Beyond the ability to shape and make Offers, NDC enables an enormously simplified set of processes for managing Orders. NDC allows Airlines to generate the Order from its accepted Offers. As the Airline generates the Offer, the resulting Order will be by definition "correct", so removing any need to check for and deal with instances where fares were not correctly applied. Having established a ‘guaranteed clean’ Order, an NDC Airline can continue to ensure its integrity through subsequent servicing and ticketing. NDC, therefore, presents the possibility of a much simplified process landscape.

The extent to which an Airline decides to utilize NDC will be influenced by its business needs and IT capability. It may be that an Airline chooses to implement NDC processes end to end, controlling Offers, Orders, ticketing and settling directly with the Seller. Or an Airline may implement, perhaps as an initial step, only the NDC shopping process and continue allowing 3rd parties to carry out booking and ticketing. Some Airlines may choose at some point to manage all their indirect sales using NDC based channels. Other Airlines may choose, if only during a transition period, to use a combination of NDC based and non-NDC based processes. The NDC Standard is agnostic as to whether an environment is based purely on NDC processes or NDC based processes used in combination with some other processes. It will be for each Airline to choose which solution would be most beneficial for its business. This guide considers the full scope of NDC, with the implicit understanding that deployments may in fact use only part of that scope.
2.3 Roles in NDC

The NDC Standard is agnostic in terms of precise usage. Indeed an objective of NDC is to foster innovation. There is unlikely to be a "standard" NDC implementation. However a number of specific roles were envisaged during the process of developing the NDC Standard. The roles outlined below, may correspond to independent actors in the supply chain or not: that is, a single organization may play the role of both Aggregator and Seller, or they could be separate companies.

The Airline’s role in NDC will be to respond to requests for Offers, to manage Orders, which includes processing payments and issuing accountable documents. This is in contrast to the current model for indirect sales where an agent uses a GDS to assemble Offers from relatively static databases of schedules, fares and rules; only consulting the Airline for availability in a specified booking class. The direct involvement of the Airline in assembling Offers fundamentally changes the shopping process. Ticketing and revenue accounting processes will also be affected by NDC putting the Airline at the center of interactions (between the Seller/Aggregator and any other Airlines involved within an interline itinerary) during the indirect shopping process.

To make the necessary distinction between the different roles Airlines can play in interline transactions the Airline role can be further subdivided.

> **The Offer Responsible Airline (ORA):** The Airline receiving the shopping request from the Seller/Aggregator is called the ‘Offer Responsible Airline’ or ‘ORA’. Within applicable legal and contractual constraints, the ORA has complete freedom in the manner it prepares responses which may include other Airlines’ products. For example, the ORA could dynamically interact with other Airlines, so called Participating Offer Airlines (see below), using NDC messages to obtain settlement-priced product Offers from one or more POAs, and then choose to include one or more of those products in the final Offer(s) it returns to the Seller/Aggregator.

*Notes: It is assumed that the ORA and POA(s) will have valid commercial agreement(s) in place before the shopping process between the Airlines commences.*

> **The Participating Offer Airline (POA):** If the Offer Responsible Airline sends NDC messages to other Airlines during an interline NDC process, then these other Airlines are called ‘Participating Offer Airlines’ or ‘POAs’.

The Seller’s/ Aggregator role in NDC could be performed by a 3rd party (which would make them the “Aggregator”) or handled internally by the Seller. The Aggregator
is not a party within the transaction itself and cannot alter the Offers it receives from the Airlines.

- **The Seller**: Sellers request Offers, initiated by a customer request, directly from an Airline or via an external Aggregator and present the Offers back to the customer for selection. In most cases, when an Offer is selected by a Customer, the Seller will initiate a process resulting in the creation of an Order by an Airline. The Seller may also be responsible for sending payment information, and initiating any subsequent servicing of the Order.

- **The Aggregator**: An Aggregator’s role is to request Offers from Airlines based on a shopping request initiated by a Seller, and respond to the Seller with a consolidated set of these Offers. This consolidation could involve receiving one or more Offers from Airlines and deciding which Offers and in what form they should be presented to the Seller.

## 2.4 NDC end to end – high level description

### 2.4.1 Overview

Before the individual NDC domains are covered in detail in section 3, this section provides an overview at a high level of the end to end NDC process flow.

### 2.4.2 Shopping

#### 2.4.2.1 Shopping Request – Seller to Aggregator

Reflecting a customer’s travel requirements, a shopping request is initiated by a Seller. This shopping request will include the basic information (such as O&D) that an Airline will need to be able to respond with Offers to the Seller and may include more information about the customer/traveler (personalized shopping), or about the specific products the customer is looking for (attribute shopping - e.g. specifying cabin, specific aircraft features, certain ancillary product requirements etc.).
2.4.2.2 Shopping Request – Aggregator to Airline

This request is received by an Aggregator who sends requests to the Airlines it believes will be able to respond with relevant Offers. The Aggregator at this stage needs to make a determination as to which Airlines to send the request to – and this may or may not involve use of the Airline Profile (alternatively it may use internal data, or be led by the Seller, to make the determination). The Aggregator will send the requests to those Airlines that are NDC capable, and that are willing to receive shopping requests for a specified market.

2.4.2.3 Offer Construction

The Airline receives the shopping request from the Aggregator and begins to build the Offers it wishes to respond to the request with – this is an internal process within the Airline’s Offer Management System. How the Airline chooses to build Offers, which products it wishes to include, and at what price, is for the individual Airline to decide – it will be based on their own commercial decisions along with the capability of their internal systems.

These Offers may include one flight option or many, and may include additional ancillary items. These ancillaries may be included in Offers for purchase individually alongside the flight(s), or as part of a bundle where one price is specified for the flights and ancillaries together. There is also the possibility that a standalone ancillary may be purchased that does not have to be purchased and/or consumed in relation to a specific flight.

The Offers may be generic and an Offer with the same contents may be created to respond to more than one request, or they may be tailored to the individual customer (personalized). It is worth noting that just because a Seller/Aggregator sends a personalized request to an Airline, the Airline may choose not to take this information into account when building their Offers.
These Offers are each uniquely identifiable by both the Airline and Seller/Aggregator thanks to the use of an “Offer ID”. The individual products within an Offer are broken down into “Offer Items” and “Services”. An Offer contains one or more Offer Items, and each Offer Item contains one or more Services. Each Offer Item and Service are individually referenced using “Offer Item IDs” and “Service IDs”. The structure of an Offer, and the use of these IDs, is discussed in more detail in section 3.1.1.

Each Offer will have certain rules and conditions applied to it and as per the decision as to which products to include, and what price it applies, it is up to the Airline to decide. These conditions could include various time limits, for example how long the Offer is valid for, by what time payment must be made, how long inventory is guaranteed for (if at all) etc.

2.4.2.4 Shopping Response - Airline to Aggregator

The Airline then responds to the Aggregator with the Offer(s) it has created. The Aggregator cannot alter the contents of these Offers, nor can it combine elements of one with another. The Aggregator may be receiving shopping responses with multiple Offers from numerous Airlines. At this stage, the Aggregator’s role is to consolidate these Offers and make a decision as to which Offers to return to the Seller, and in what form (e.g. the ranking by which they are presented). The Aggregator will then send a shopping response to the Seller with the consolidated set of Offers.

As a reminder, the Aggregator role may be external to the Seller, or this may be a function being performed by the Seller themselves internally. The Aggregator’s role does not change in the latter scenario, however NDC messaging may not be present as any interaction between systems may be handled internally.

2.4.2.5 Shopping Response – Aggregator to Seller

The Seller receives the shopping response from the Aggregator and may perform further analysis to determine which Offers to display to the Customer, and how these
should be presented. As with the Aggregator, the Offers received may not be altered, nor can elements of one Offer be combined with another.

One of the main differences between this process and how a Seller may receive/put together their Offers today is that it is the Airline that receives details of a Customer’s request and builds an Offer internally. This is a shift from the model where a Seller, with the help of an Aggregator, puts together an Offer for the customer using pre-determined fares, rules and ancillary products. For example, a Seller/Aggregator may not build an itinerary by combining various Offers for point to point flights, nor build an interline itinerary by combining Offers for flights from different Airlines.

How this applies to ancillary products delivered by third party suppliers (e.g. a non-airline controlled lounge), or for non-flight related products such as packaging a flight with a hotel or car, is outside the scope of NDC.

2.4.3 Order

2.4.3.1 Offer Selection

If a Customer chooses to accept an Offer, the Seller will ask the Airline to create an Order. This Order creation request may be sent directly to the Airline, or it may still pass through the Aggregator.

If the request passes through the Aggregator, their role is passive and they will act as a proxy, they may continue to aid with authentication of the messages/the actors involved, but they will no longer be applying any routing logic as the Order is placed with the specific Airline that created the chosen Offer originally.

2.4.3.2 Order Creation

When this request is received by the Airline, it will create the Order within its Order Management System after validating that the conditions of the Offer have been met (e.g. the Offer Time Limit has not expired).
2.4.3.3 Order Confirmation

The Airline will respond to the Seller (perhaps via the Aggregator) with any details of the Order that are relevant for the Seller and Customer. This will include a unique Order ID (which has a 1 to 1 relationship with the Offer ID), and any relevant Order Item IDs and Service IDs (similarly these have a 1 to 1 relationships with the Offer Item IDs and Service IDs originally presented as part of the Offer).

Further time limits such as inventory guarantees and payment time limits may be applied by the Airline.

2.4.4 Payment

If “instant payment” was a condition of the Airline’s original Offer, the Customer’s payment information will need to be sent as part of the Order creation request to the Airline, and the Airline would be responsible for performing the necessary steps internally to process this payment. The forms of payment supported are not limited by NDC and may include various credit/debit cards, loyalty program redemption points etc. Where the agent is accredited into a settlement plan, such as IATA’s BSP, the payment may be settled through this mechanism. The accepted forms of payment will be a decision between the Seller and the Airline.

If payment details are not sent by the Seller within the request to create the Order (the assumption being that this does not invalidate any conditions of the Offer), they may subsequently be sent to the Airline in advance of Accountable Document issuance. NDC supports both instant and delayed payment, and it will be the Seller’s responsibility to ensure timely payment in accordance with the conditions attached to the Offer/Order.

2.4.5 Accountable Document issuance

When payment has been processed by the Airline (whether they’re directly handling the payment, or authenticating “agency cash”), it will be their responsibility to issue the relevant Accountable Documents against flight(s) and any ancillaries, and communicate document numbers to the Seller.

It should be noted that it is the Airline that determines which Accountable Documents to issue. The default assumption is that the ORA will become the Validating Carrier issuing the accounting documents. Depending on their commercial agreements and technical capability, the Airline may wish for another Airline to perform the issuance on their behalf, or they may wish to use the services of an Aggregator for this. If this was their chosen method of issuance, the Airline would need to be confident that revenue integrity, servicing and revenue accounting can then be maintained.
Both payment and the issuing of accountable documents is covered in detail in section 3.3.

2.4.6 Settlement

NDC provides Airlines with the opportunity to process immediately the card payments made by their Customers and request payment from their acquiring bank.

Where the Seller and ORA participate in a settlement plan such as the BSP, the ORA can use that mechanism to receive cash payments or pay commissions by entering the sale information into the settlement plan. This will exactly follow the agreed Offer and Order, hence there is no opportunity for errors, disagreements or debit memos: the Seller has correctly identified the type of passenger and their payment method (e.g. child fares can only be used by persons under the relevant age). This should result in settlement between Sellers and ORAs being far quicker and simpler.

2.4.7 Interline

In addition to the end to end process described above, NDC supports interlining. The same messages and process flow are used when shopping for and Ordering against an interline itinerary – the Seller will still initiate a shopping request based on a Customer’s requirements, and the Aggregator will still send this request on to Airlines in the hope of receiving shopping responses with Offers.

The main difference between the online vs interline flow exists where the Airline (the Offer Responsible Airline, or ORA) chooses to send a shopping request to another Airline (a Participating Offer Airline, or POA), combining the POA’s Offers with their own products, to form one combined, final Offer to the Seller/Aggregator.

The ORA may have chosen to do this either because they are not able to full satisfy the original request by building an Offer comprising solely their own services, or to enhance the contents of their Offer by incorporating services one or more POAs may provide.

The POA would not normally communicate a customer facing “price” to the ORA for their products, but instead include a Settlement Value as part of their Offer, specifying the amount due to the POA from the ORA for the provision of a service, be it flight or ancillary.

The ORA remains responsible for responding to the Seller/Aggregator, and when an Offer is accepted, it is the ORA that will create the “Master Order”, process payment, issue the accountable document(s) and be responsible for interline settlement with POA(s). The POA becomes in effect a “supplier” to the ORA.
This brief description only begins to touch on Interlining in NDC, and this is described in greater detail in section 3.4.

2.4.8 Servicing

2.4.8.1 Voluntary Servicing

When an Order has been created and then subsequently needs to be changed or cancelled, this comes into the realm of “Order Servicing”. This could be something as simple as the purchase of an additional ancillary product against an existing Order, a full cancellation and subsequent refund, or more complex requests such as a changes to flights, routes, bundled products or the passengers involved in the Order – which may or may not result in additional collection.

NDC supports the servicing of Orders, and it will be the responsibility of the ORA to facilitate the servicing of the Order. Requests to change or cancel an Order will generally be initiated by a Seller on behalf of a Customer, and changes will often involve “re-shopping”.

How the NDC messages are used for Order Servicing is covered in section 3.2.5.2.

2.4.8.2 Involuntary Servicing

Involuntary servicing may take place where a Customer (via a Seller) does not initiate the servicing of an Order.

Ultimately, it is the responsibility of the ORA to communicate any involuntary changes of an Order to the Customer via a Seller. In the Planning Window this will be a relatively straightforward exchange, however in the Operational Window and during irregular operations, it may be that the ORA has to communicate directly with the customer.

NDC supports both methods of exchange.

2.4.8.3 Interline Servicing

Where more than one Airline is present in an Order, the NDC Order Servicing messages can also be used.

For voluntary changes to an Order, the message flow is similar to the online flow – the customer will contact the Seller (or the ORA) to begin the process, and it is the ORA that is ultimately responsible for making and confirming any changes to an
Order. Depending on the nature of the change, the ORA may have to re-shop the POA that is already a part of their Order, or they may take the opportunity to request Offers from new POAs.

The POA is not permitted to make changes to the Master Order – this is the responsibility of the ORA. For example, if a Customer contacts the POA directly to make a change to the Order (even if the change only impacts the POA’s services), this request should be directed to the ORA via NDC messaging. In this situation, the POA effectively becomes the Seller.

However, involuntary changes (be they in the Planning or Operational Window) may result in a POA having an impact on the servicing of Orders and it may be the case that it is the POA initiating a change to the Order. Any changes should be specifically for operational reasons as the ORA owns the Master Order.

Both voluntary and involuntary Interline Servicing are described in detail in section 3.4.4.5.
3 NDC Standards description

This section of the guide will follow the structure of the NDC Domains, with a subsection aligned closely to the range of functionality provided by the schemas. Within each subsection there will be a discussion on the topics and concepts that are important to understand in relation to that functional area, followed by a brief description of the messages, and finally Use Cases illustrating where the messages are shown in use.

Areas of NDC functional impact

Use Cases show a given way of interpreting and implementing the schemas. The intention here is to illustrate, not to limit; other ways of implementing the schemas exist and may be perfectly valid.

Airline Profile will be covered in Shopping, since it is only used within this domain (although discussion of how Airline Profile applies to Interline will be covered in the Interline section).

A dedicated chapter enlarges the simple picture as described above to the more complex case of interline.

For the whole of section 3, the following three principles apply:

- Seller and Aggregator credentials will be authenticated by the Airline.

- Parties using the API shall ensure their own compliance with all applicable laws and regulations.
Implementers shall be responsible for maintaining data confidentiality and be compliant with all applicable privacy laws and regulations.

3.1 Shopping

The NDC shopping schemas enable Airlines to distribute their products in the form of Offers and to merchandize their services, be they their flights or ancillaries (flight or non-flight related), using rich content.

3.1.1 NDC Shopping Principles

Shopping within NDC begins with a request from a Seller to an ORA as a result of a customer enquiry. These requests may be as simple as looking for a particular route and date, or may be more advanced, looking for a date range (calendar shopping), specific product criteria (attribute shopping) or may be personalized (where customer/traveler data is provided).

A shopping request must always be initiated as a result of a genuine customer query – unsolicited shopping requests are not permitted.

Whether or not the ORA responds to the Seller/Aggregator with Offers and what these Offers contain is the internal commercial decision of the ORA, built within the Airline’s own system. Thus, NDC represents a shift from the model where Offers can only be based on information such as prices, conditions and schedules, this information being filed outside of an Airline’s system and combined to form a final Offer to a customer by a third party, over which the Airline has no control.

In NDC, Offers are created directly in response to a request from a Seller (which may go through an Aggregator on its way to the Airline). Each Airline will be free to decide on the mechanisms it uses to construct its Offers, and which to return to the Seller. What the NDC Standard does specify are the components that can make up Offers by virtue of being able to be carried in the messages, and a means to communicate those Offers in a consistent way.

The method and ranking used to display Offers is not in scope of NDC, this is a commercial decision between the parties that may or may not be influenced by their agreements with Airlines and applicable to local laws.

3.1.1.1 Key Shopping Features

Shopping requests may be sent with individual traveler data (personalized) or sent without any specific traveler data (anonymous). The shopping response may
be customized based on the traveler information that is passed in the request. Although, sending individual traveler data in the request doesn't guarantee the ORA will return a different Offer as part of their response.

Shopping requests may be formulated to include basic or more advance search criteria.

- **Basic shopping**: A request that contains criteria such as the origin, destination and travel dates.
- **Ancillary-only shopping**: A request that contains criteria to search for specific ancillary Offerings (pillows for sale, Aisle seat with extra legroom).
- **Affinity shopping**: A wide search where a range of criteria are defined. This may include specific interests, destination attributes (such as a beach location), defined budget parameters, date ranges and/or destination ranges.
- **Attribute shopping**: A search specifying one or more attributes to obtain more focused results (e.g. flat-bed only).

Furthering the concept of “personalized” shopping – the request could include various pieces of information about the customer of traveler, which may or may not be related to a frequent flyer/loyalty program. When this data is received by the Airline and they can determine that a passenger is already known to them, this traveler is deemed to be a “Recognized Traveler”. Again, this may or may not be based on a loyalty program, or the Airline could choose to use other data in an attempt to recognize the traveler.

*Note: The term “Recognized Traveler”, nor the concept of personalization, is not to be confused with the TSA “Known Traveler” program.*

### 3.1.1.2 Offer Management

Offer Management refers to the ability to create and communicate an Airline’s products as part of the shopping process.

When a shopping request is being processed, its response will contain a set of shopping Offers. The response will have a globally unique instance identifier known as the Shopping Response ID.

**Key features**

- Offers are returned to the Seller/Aggregator by the ORA and are uniquely identified by an Offer ID. Offers contain one or more Offer Items. An
Offer may support non-homogeneity where each customer may be presented with different set of Offer Items, each representing individual product or service that will be fulfilled as part of the resulting Order. Each Offer may have a total price attached.

Once the ORA has sent its Offers to the Seller/Aggregator, the Offers and their contents can no longer be altered.

Offer Items are identified by their Offer Item IDs and contain one or more Services. Offer Items can have a mandatory or optional status indicating the way they are associated in the Offer. Each Offer Item has a price attached.

Services support the sale of a flexible range of Airline products and ancillary services that are not necessarily journey based (e.g. subscription services). Services may be just flights or just ancillary products. A Service is also uniquely identified by one Service ID. Each Service may have a value attached.

Key features of an Offer

With NDC, the ORA is entirely responsible for the contents of an Offer: the products it contains (be they flights bundled with ancillaries, separately selectable services, or a combination), any acceptance rules (e.g. time limits), the price of the individual services/bundle, any other conditions (e.g. against refunds or changes once Ordered) and other guarantees/time limits. Whilst the ORA will be responsible for creating Offers, the Seller is able to decide whether or not a particular Offer is displayed to the customer, and of course ultimately it is the customer’s decision as to whether or not an Offer is accepted. NDC enables Offers to contain more flexibility than was possible previously.

In NDC the request/Offer conversation will always be between Sellers and Airlines, whether or not there is an Aggregator involved, although an Aggregator may have an important role to play in the shopping process.
**Offer Pricing**

As defined above, an Offer is returned to a customer following a request. It covers all or part of the request, has core elements (Offer Items that are mandatory to cover the request) and in addition might propose one or more optional elements (optional Offer Items).

Each Offer Item (mandatory or optional) has its own price, and can be seen as an unbreakable package. Pricing is not mandatory at the service level.

**Offer Pricing**

**Time Limits**

An Offer may feature time limits:

- Offer Time Limit
- Inventory Guarantee Time Limit
- Price Guarantee Time Limit
- Payment Time Limit
- Deposit Time Limit*
- Name Time Limit*
Bilaterally-Agreed Time Limit

*Groups only

The ORA will validate that time limits are adhered to. If a time limit has been exceeded, it is up to the ORA to accept or reject for further processing.

**Definition:**

```
+----------------+----------------+
|                |                |
| Offer is valid | The Inventory  |
| time expires   | no longer      |
|                | guaranteed     |
+----------------+----------------+
|                |                |
| Offer is valid | The Inventory  |
| price expired  | no longer      |
|                | guaranteed     |
+----------------+----------------+
|                |                |
| Offer is valid | time to Order  |
|                |                |
| Offer has      | Order cannot   |
| expired        | be created     |
+----------------+----------------+
|                |                |
| The Offer      | The Order      |
| is valid       | has been      |
| payment can    | submitted      |
| be submitted   |                |
+----------------+----------------+
|                |                |
|                | If not paid the |
|                | Order is       |
|                | suppressed     |
```

**Main Time Limits**

### 3.1.1.3 The Role of an Aggregator in Shopping

The role of the Aggregator is the business function of distributing a Seller’s shopping requests to multiple Airlines and aggregating subsequent responses. A Seller may use more than one Aggregator.

By default, the Aggregator returns all Offers to the Seller. However, the Aggregator may apply logic taking into account the Seller and only sends back the most relevant Offers – what constitutes the most relevant is not defined by NDC but will be up to those parties to decide.

The ORA and Aggregator may define rules as to which Offers must reach the Seller.

Any visibility the ORA has on what is sent from Aggregator to Seller is down to the ORA/Aggregator relationship.

The Aggregator could be a third party and/or the aggregation function could reside within the Seller system.
3.1.1.4 High Level Shopping Flow

A shopping flow is involving 3 main parties: Seller, Aggregator and the Offer Responsible Airline (ORA). The Aggregation function may be done by an external party or internally by the Seller.

1. A shopping request is created by the Seller from a Customer request. This shopping request may be sent to several ORAs.

2. The Aggregator selects the Airlines which should be involved in the request.

3. From the shopping request, the ORA is creating Offers and sending them to the Aggregator in a shopping response.

4. The Aggregator collects the Offers from each ORA and applies a selection logic among the Offers.

5. The selected Offers are sent back to the Seller which will also be able to apply its own selection logic.

3.1.1.5 An Introduction to Interline Shopping

In the instance where the ORA is not able to fulfil the entire shopping request, they may ask other POA’s) to fulfill the remainder as part of an interline Offer. It is the ORA that builds the Offer(s) featuring the POA’s services. All communication with the Seller/Aggregator is handled by the ORA, which is a shift from today’s model. This continues to apply when an Order is created or servicing takes place, and this is covered later in this guide in section 3.4.1.

3.1.2 Airline Profile

The NDC Airline Profile schemas provide the ability for an Airline to communicate which Shopping requests it is willing to receive, and has the capability to respond to. Whilst optional, these schemas are a way an Airline could manage the volume of requests they receive.

As described in section 3.1, the shopping process puts the Airline forefront when it comes to building Offers in response to a shopping request. The consequence of the Airline’s new role as a result of implementing NDC is that it needs to be prepared to receive a high volume and process many different types of requests.
At the same time, if Sellers / Aggregators had to send requests to all NDC capable Airlines without a control mechanism in place, most of the messages would be irrelevant – i.e. the Airlines receiving the requests are unlikely to have products that meet the criteria. Sellers / Aggregators are therefore likely to get a very low answer rate.

To summarize, Airlines would face an issue of scalability (too many requests, with limited amount of relevant ones) and processing time, and Sellers / Aggregators a high level of inefficiency for instance low or slow response rates.

Airlines therefore need to have the capability of supporting NDC transactions when it makes sense to them, avoiding the receipt of irrelevant requests. It needs to be able to communicate its position to their distribution partners. Airlines have the ability to manage the volume of NDC requests through the Airline Profile.

Two solutions may fulfill the need to control the volume of NDC transactions – one is the Airline Profile, the other being by bilateral agreement/implementation. Choosing a particular method will be the Airline’s choice.

By keeping the NDC status of the Airline “private” the Airline will be in a position to decide with whom it supports NDC transactions and for what scope. It settles bilateral agreements with its chosen stakeholders (OTA, TMC, interline partners…). Only those stakeholders know that they can send NDC requests and get Offers from the Airline, on the given scope that has been shared with them. The rest of the Airline distribution stays as today. The whole process is bilateral and not in the scope of NDC.

By sharing the Airline Profile with the distribution stakeholders, the Airline publishes information about the requests it is happy to accept, and its level of NDC capability (=the Airline Profile): circumstances, services, points of sales, markets or routes.

Note: The Airline Profile is not the equivalent of today’s schedule – whilst it includes information about the routes an Airline will accept a shopping request for, the purpose of doing so is to avoid receiving unnecessarily large volumes of irrelevant requests.

The use of the Airline Profile is not mandatory – to be NDC capable the Airline does not need to maintain a Profile – but the schemas are available as a tool with which to manage this increased volume of requests. Similarly, it is not mandatory for the Seller/Aggregator to follow the Profile’s advice – there is no mechanism defined within NDC or the Airline Profile to prevent a stakeholder sending a request to an Airline that had specified in its Profile that it was not willing to accept it.

An Airline’s Profile is also available for consumption by other Airlines (ORAs), alongside Sellers and Aggregators, for interline requests. This is to help them...
decide which Airlines (POAs) to send a further shopping request to, where the ORA cannot fulfill the Seller/Aggregator’s entire request with its own services.

Standards are defined and the schemas available to allow exchanges of that information. Section 3.1.2.2 focusses on Airlines using this facility.

3.1.2.1 Ownership and Maintenance of the Airline Profile:

The Airline Profile is owned and maintained by the Airline. In terms of its location, the Airline Profile can be maintained internally within the Airline, or it could be hosted externally by a third party. NDC does not define this location: it will be a decision per individual Airline.

If a profile does not exist for an Airline, unless it has a bilateral arrangement, it is assumed that the Airline is not accepting queries for NDC transactions from the requestor.

Each Airline is responsible for ensuring that their profile is up-to-date and that the Profile has been made available to the parties capable of exchanging NDC messages. However, the Profile does not include information regarding commercial agreements. Defining the exact contents of or mechanisms for the creation, usage, maintenance and deletion of Airline Profile is not in the scope of NDC.

Whilst the Airline maintains its entire Airline Profile, each stakeholder only has access to its own content – i.e. that content which the Airline has approved for that actor. The information may be different depending on the Seller/Aggregator making the request - the Airline may or may not limit its Offering based on the requestor.

For instance:

- The information returned may be very limited for an unknown Seller or non-partner Airline: For example - “no request is welcome”.

- For a Seller with a global reach: For example – “the Airline’s entire NDC distribution scope is available”. Subscribers with access to Airline Profile data are not permitted to disclose any Airline Profile data to any other Stakeholders, unless agreed bilaterally.

3.1.2.2 Usage

The usage of the Airline Profile forms part of the shopping process.
In order to fulfil a given consumer’s request, the Aggregator or Seller must first determine which Airlines are capable of responding. In order to make this determination it may query its subset of “Airline Profiles”.

**There are two methods of distributing Airline Profile data – “Pull” and “Push”**.

For efficiency purposes, whether the Push or Pull method is used, it is envisioned that the requestor would subsequently store a copy of the Airline Profile so that it is accessible without having to connect with the Airline at the time of the shopping request. Both methods are in fact used to update this local copy.

It should also be noted that only the information a particular Seller has access to is returned in the response.

**The Pull method** would see the Seller/Aggregator/POA sending a request for an Airline’s Profile data, either directly to the Airline or to their external Airline Profile host.

Whilst this request could take place per shopping request, this would add significant load to an Airline’s system, and would increase response times. It is therefore likely that the request would take place periodically, the frequency of this determined either by the Seller/Aggregator, or bilaterally between Seller/Aggregator and Airline.

**The Push method** involves one way interaction between the Airline and Seller/Aggregator – The Airline (or external host) will “Push” its relevant Airline Profile data to the relevant Seller, Aggregator or POA.

This Push could be triggered whenever the Airline Profile is updated by the Airline, on a regular bilaterally agreed timescale or on an ad-hoc basis – this will be a decision to be made between the Airline and receiver, and a particular Airline may use more than one method across their range of partners.

The following elements are the Match criteria that determine the record used to indicate which transactions are permitted by the Airline

- Date of Request
- Itinerary information (origin, destination...)

As a response, the Seller would receive a list of Airlines that meet the criteria, and are therefore capable of answering the request.

Examples of the processes in which the Airline Profile is used are shown in Shopping Use Cases [section 3.1.4](#).
To send requests, the following data is required:

- Receiver ID: Identification of the Airline Profile Receiver: may be either an Aggregator Identity ID, a Seller ID, or an Airline identity Code as defined in the Order Management Data Dictionary.
- Airline: The Airline(s) whose Profile is being requested.

3.1.2.3 Specific Schemas for the Airline Profile:

As explained in the previous paragraph, there are two primary methods for receiving an Airline Profile:

**Pull Method:** An Airline Profile receiver sends a request to the Airline Profile sender to send one or more Airline Profiles and Airline Profile Sender transmits the appropriate profiles.

Messages used:

- **AirlineProfileRQ** - Request for Airline Profile(s)
- **AirlineProfileRS** - Response which may include either a link to the Profile or the Profile itself

---

**Pull method**
**Push Method:** Airline Profile Sender pushes Airline Profiles or links to Airline Profiles to receivers that have been activated/authorized.

Messages used:

- **AirlineProfileNotif** - Provides a mechanism to unilaterally send an Airline Profile or a link to the Profile to Receivers that have been previously authorized.

- **AirlineProfileACK/AirlineProfileNACK** - The AirlineProfileACK and AirlineProfileNACK messages provide mechanisms to either acknowledge the receipt of an Airline Profile or communicate that the Receiver has not received a scheduled or expected transmission.

---

### Airline Profile Updates

<table>
<thead>
<tr>
<th>Seller/Aggregator (AP Receiver)</th>
<th>Airline (AP Sender)</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Diagram" /></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>

**Push Method**

*Note1:* NDC Airline Profile candidate schemas were reviewed at PADIS September 2015 Messaging Week, and agreed as fit for purpose. Airline Profile schemas are pending submission for PADIS Board vote in early 2016 for inclusion in the next PADIS Release (16.1) and therefore not yet included in the interim releases of the NDC Schemas available from [http://www.iata.org/ndc](http://www.iata.org/ndc)

*Note2:* Airline Profile in Interline is covered in section 3.4.3.4
3.1.3 NDC Shopping Messages

The topics in this section provide details about the messages that are central to the NDC shopping functionality.

In NDC, there are common capabilities across shopping messages which allow for multiple criteria to be used in the input.

- Calendar Shopping
- Affinity Shopping
- Ancillaries
- Seating Options
- Baggage Options

**AirShoppingRQ/RS**

The AirShopping transaction set supports both demanding and flexible shopping experiences for anonymous or personalized shopping. Both functionally-rich attribute shopping and affinity shopping support date range or specific month (calendar) shopping, amongst other features.

The response returns Offers which may include branded or itinerary-priced Offers with or without ancillary services. It also returns applicable rules for the integrated fares as well as for each service. The message also returns multi-media content at message level as well as media references at the individual Offer level.

**FlightPriceRQ/RS**

The FlightPrice transaction set may return two different sets of content. Based on request attributes, the response may initially provide additional à la carte ancillary services that are applicable and available for the selected Offer.

If no ancillary services are available, the message returns a final pricing. If ancillary services are available, the modified pricing request includes selected services and returns a final pricing that includes service(s) selection. The response message also returns multi-media content at the message level.

**SeatAvailabilityRQ/RS**

The SeatAvailability transaction set returns data used to construct respective seat maps with fully integrated fees for any identified premium seats. The message also
returns multi-media content at the message level with media content references at the individual service level.

**ServiceListRQ/RS**

The ServiceList transaction set returns a list of all applicable ancillary services that meet request qualifiers and flights.

The message supports shopping for additional a la carte services to complement any selected Offer, as well as shopping for specialty service items not generally included in an initial Offer but rather based on service search filters, e.g. sports equipment, specialty baggage and unaccompanied minor fees.

The message also returns multi-media content at both the message and individual service levels identified in the Offer.

**ServicePriceRQ/RS**

The ServicePrice transaction set allows individual seats and/or known a la carte ancillary services to be priced on demand.

The response message returns pricing of seat/services meeting the request qualifiers. The message also returns multi-media content at message level as well as at the individual service level.

**InvGuaranteeRQ/RS**

The InvGuarantee transaction set requests that inventory be guaranteed for specified Offers, pending their conversion into a completed/paid and/or ticketed Order. The response returns an indication if the inventory has been guaranteed, and if so, the associated inventory guarantee time limit and a unique inventory guarantee reference ID.

The Guaranteed Inventory Time Limit cannot extend beyond the Offer Time Limit after which new Offers will be generated. An Inventory Guarantee may also be issued as part of the initial Offer. Valid responses are:

1. “Inventory Guarantee Identifier” for each Offer and/or product’s Service ID
2. No Inventory Guarantee - with reasons indicated or an indicator that there is “no inventory held” for the product Offer
3. The product is ‘not under inventory control’
4. “Waitlisted”
InvReleaseNotif transaction sends an unsolicited notification to release guaranteed inventory. The Acknowledgement message may be returned to acknowledge receipt of the notification request.

**BaggageAllowanceRQ/RS**

The BaggageAllowance transaction set provides checked and carry-on baggage allowance details. Request qualifiers may include traveler, origin/destination, point of sale, flight-specific and ticketed fare information.

The response returns the baggage allowance, whether or not IATA Resolution 302 or DOT rules are applicable, baggage weight, dimensions and size information by origin/destination pair. Implementers may also obtain an additional catalog of applicable embargoes and charges within the same origin and destination pair.

**BaggageChargesRQ/RS**

The BaggageCharges transaction set determines and returns the pricing for a set of checked bags. Request qualifiers include Traveler, origin/destination, point of sale, flight-specific and ticketed fare information. The response returns the baggage charges, whether or not IATA Resolution 302 or DOT rules are applicable, and detailed trip-level pricing for all requested passengers, or origin/destination level pricing that includes checked and carry-on baggage charges.

**BaggageListRQ/RS**

The BaggageList transaction set determines and returns a list of bag types (e.g. sporting equipment, pet in hold, overweight bags, etc.) that can be checked or brought in cabin for a fee and for a specified itinerary or carrier.

Request qualifiers may include traveler, origin/destination, flight-specific and ticketed fare information.

**FareRulesRQ/RS**

The FareRules transaction set returns the filed details of a specific fare basis code.

**ShopProductRQ/RS**

The ShopProduct transaction set queries for ancillaries’ Offers only with no priced itinerary.
FileRetrieveRQ/RS

The FileRetrieve transaction set supplements other NDC shopping messages with payloads designed to efficiently exchange Offer-associated media using IDs and URLs.

Using the FileRetrieveRQ message, implementers can subsequently retrieve binary encoded files - such as images or PDFs - from the IDs or URLs in a shopping response message that are returned in the FileRetrieveRS message.

This message pair also supports scenarios where trading partners maintain a physical cache of Offer associated media from other trading partners based on media IDs and/or URLs. The message supports multi-media content at the message level. Alternatively it may be providing links to web pages that contain optional service Terms and Conditions as an example.
3.1.4 Use Cases – Shopping

3.1.4.1 Use Case 1 – Time Limit / Personalized Shopping

Principal actors
- Customer
- Seller/Aggregator
- Offer Responsible Airline (ORA)

Description
A customer based in Miami needs to fly to Dallas for business. He belongs to the Airline frequent flyer program and wants to explore all options offered for his destination.

This Use Case describes the process of shopping for flights for a recognized traveler (based on Frequent Traveler details). Origin & Destination together with time and cabin preferences are specified.

Preconditions/Assumptions

- The ORA and Seller/Aggregator have valid commercial agreements in place between them and have taken steps to ensure that they are compliant with any applicable competition law or regulation.
- The Customer communicates to the Seller/Aggregator his intended travel plan which includes travelling to Dallas from their home city of Miami and agrees to share personal information such as Frequent Traveler number and name.
- The Seller/Aggregator chooses to use Airline Profile data to determine which ORA to send the shopping request to - it is assumed the ORA will have specified within its Airline Profile that it is an NDC carrier and it wishes to receive shopping requests for this destination or route.
Steps to follow in the process

1. The Seller/Aggregator sends a shopping request to the ORA using Origin & Destination (MIA-DFW), dates, time, cabin preferences and Frequent Traveler information.

2. The ORA receives the shopping request and queries its Offer Management System to determine possible Offers.

3. The ORA builds possible itineraries, if necessary, using known schedules and rules (such as MCT, MEFT, Traffic restrictions, etc.). The ORA determines that it can meet the request with its own services.

4. The ORA validates the Frequent Traveler data and determines which of its own services it wishes to include in the Offers it will return to the Seller/Aggregator.

5. The ORA chooses to personalize the Offer(s) by including a complimentary lounge pass, same day flight change and preferred seats.

6. The ORA chooses to apply an Offer Time Limit of 30 minutes to each Offer.

7. The ORA generates a shopping response containing these Offers.
8. The ORA transmits its Offer(s) to the Seller/Aggregator.

9. Offer(s) are presented to the Customer by the Seller/Aggregator.

**Post Conditions**

The Customer is in possession of Offer(s) based on his Frequent Traveler status. The Offers have an Offer Time Limit.

### 3.1.4.2 Use Case 2 – Attribute Shopping featuring à la Carte Ancillary

**Principal actors**

- Customer
- Seller/Aggregator
- Offer Responsible Airline (ORA)

**Description**

A customer based in New York would like to go to Paris for business. As he has an important meeting at noon, he would like to arrive to Paris in the morning. He would like to get a flat-bed seat to be able to sleep, and he would also like to get a healthy breakfast.
This Use Case describes the process of attribute shopping, and the results are expected to contain the requested ancillary services.

Preconditions/Assumptions

- The ORA and Seller/Aggregator have valid commercial agreements in place between them and have taken steps to ensure that they are compliant with any applicable competition law or regulation.
- The customer has not communicated personal details to the Seller/Aggregator, but it should be noted that personal information could have been transmitted to the ORA.
- The customer communicates to the Seller/Aggregator their intended travel plan and preferences.
- If the Seller/Aggregator chooses to use Airline Profile data to determine which ORAs to send their shopping request to, it is assumed the ORA will have specified within their Airline Profile that it is an NDC carrier and that it wishes to receive attribute shopping requests.
- This illustration focuses on the flow to one particular ORA, but the Seller may have contacted multiple ORAs simultaneously.

Attribute Shopping UC featuring a la carte ancillary

<table>
<thead>
<tr>
<th>Seller / Aggregator</th>
<th>ORA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seller sends an anonymous shopping request using Origin/Destination, Time, and request for specific ancillary services</td>
<td>ORA receives the Shopping request and queries its Offer Mgmt. system</td>
</tr>
<tr>
<td>Seller decides which Offer(s) to display to the Customer</td>
<td>ORA generates Offers matching ancillary criteria with associated Time Limits</td>
</tr>
</tbody>
</table>

Steps to follow in the process

1. The Seller/Aggregator sends a shopping request to the ORA providing Origin & Destination information, Time, and including a request for specific ancillary services.
2. The ORA receives the shopping request and builds Offers that match as many criteria as possible. To have more chances to convert the Offer into an Order, the ORA may decide to return only Offers that completely match the set of criteria requested by the Seller (i.e. Origin & Destination, time, and requested ancillary services).

3. The ORA generates the Offer with associated Time Limits and returns it to the Seller in the shopping response.

AirShoppingRS – ShoppingResponseID #000001

OfferID #11111111

OfferItemID #11111111-01 – Price $2450

ServiceID F2152d53
Flat Bed Seat incl.
JFK-CDG

ServiceID M8545s4
Healthy breakfast
JFK-CDG
Price $15

In addition, the message may include:
- Acceptance rules
- Prices broken down (fare, surcharges, carrier imposed fees e.g. YQ/YR)
- Disclosure data such as operating carrier, baggage allowance and charges, etc.

4. The Seller/Aggregator decides which Offer(s) to present to the customer based on how well the initial requirements were matched by each ORA.

Post Conditions
The Customer is in possession of an Offer that fully satisfies his criteria, and he may decide to confirm it at a later stage.

3.1.4.3 Use Case 3 – Standalone Ancillary post AirShopping Request

Principal actors
- Customer
- Seller/Aggregator
- Offer Responsible Airline (ORA)
Description
A customer decides that he would like to add a lounge pass after he receives a quote for a flight.

This Use Case describes the process of requesting a standalone ancillary after the initial AirShopping response has been received from the ORA.

Preconditions/Assumptions
- The Offer has been constructed by the ORA
- The Customer has selected an Offer for flights, although no actual confirmation of this has been sent back to the ORA.
- The Seller chooses to send a FlightPriceRQ, but the result could also be achieved by using ServicePriceRQ.

Standalone ancillary post AirShoppingRQ

<table>
<thead>
<tr>
<th>Seller / Aggregator</th>
<th>ORA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seller sends a request for a lounge pass</td>
<td>ORA determines available options for lounge access</td>
</tr>
<tr>
<td>Seller selects one of the lounge pass options</td>
<td>ORA assembles the available options and formats the ServiceListRS</td>
</tr>
<tr>
<td>Seller adds the lounge pass to the original AirShopping by sending a FlightPriceRQ</td>
<td>ORA receives the FlightPriceRQ with the lounge pass</td>
</tr>
<tr>
<td>Seller receives the FlightPriceRS which contains the price for the flight &amp; lounge pass</td>
<td>ORA confirms the new price with the FlightPriceRS</td>
</tr>
</tbody>
</table>

Steps to follow in the process
1. The Seller/Aggregator requests a ServiceList from the ORA, specifying only lounge pass options.
2. The ORA receives the request for a lounge pass and determines possible options using internal logic.

3. The ORA assembles all available lounge pass options and sends back the ServiceListRS. The message includes:
   - Shopping Response ID
   - Service ID
   - Service Name
   - Service Description
   - Service Price

4. The Customer selects one of the available lounge pass options.

5. The Seller generates and sends a FlightPriceRQ to the ORA the message will include:
   - Seller/Aggregator information
   - Shopping Response ID (from ServiceListRS)
   - Service ID (from ServiceListRS)

**ServiceListRQ**

The message may include:
- Seller/Aggregator information
- Criteria = Lounge Pass
- Any other travel/traveler information

**ServiceListRS - ShoppingResponseID #0003**

- ShoppingResponseID #0003
- ServiceID LP01
  - Lounge Pass - Silver
  - Business Class lounge
  - Price €60
- ServiceID LP02
  - Lounge Pass - Gold
  - First Class lounge
  - Price €100

**FlightPriceRQ**

The message may include:
- Original OfferID that was returned in AirShoppingRS
- Seller/Aggregator information
- ShoppingResponseID #0003
- ServiceID LP02 corresponding to “Lounge Pass - Gold”
- Any other travel/traveler information
6. The ORA receives the FlightPriceRQ and, based on the ServiceID, the ORA will retrieve Service information to create the Offer.

7. ORA generates and sends a FlightPriceRS to the Seller. The message will include a Shopping Response ID, Offer Item ID, and Time Limit.

8. Seller receives the FlightPriceRS which contains the Offer for the lounge pass.

Post Conditions
The Customer is in possession of Offer(s) containing lounge passes and can now send the OrderCreateRQ (for flights and lounge pass).

3.2 Order Management - Booking

An Order is a uniquely identified record of the agreement of one party with another to receive products and services under specified terms and conditions.

Orders support the sale of a flexible range of Airline products and ancillary services.

An Order contains the products or services that need to be delivered. The content of an Order includes Order Items (with a unique Airline-assigned Order Item ID), components and dependencies that are required to fulfill the Order.

NDC messages support non-homogeneity, where each passenger may hold a different set of Order Items. For example, this means that an Order may contain two
customers travelling to different places on different dates, but are purchased in the same Order.

3.2.1 Principles

The ORA is the owner and in full control of the Order. No changes may be made to any element of an Order without going through the ORA. This can also be referred to as a Master Order.

An exception to this may occur in the event of an Involuntary Change by a POA.

3.2.2 Key Features of Order Management

The key features of Order Management include the creation, and servicing of Orders. Starting at the point of acceptance of the Offer, Order Management - Booking covers the following:

- Acceptance of an Offer for flights and/or ancillaries by the Seller.
- Creation of an Order by the Airline for the Offer Items requested.
- Retrieval of Orders (this may include retrieval of a list Orders meeting a range of search criteria).
- Retrieval of Order rules/conditions.
- Group Orders.
- Retrieval of transaction history of an Order.
- Amendment of an Order for either voluntary (following a request from a Seller) or involuntary changes.
- Cancellation of an Order.
- Unsolicited notification to the Seller of Order changes, such as notifications of schedule changes.

The processes of Payment & Ticketing are covered in a dedicated section 3.3.

An Offer Responsible Airline (ORA) may be in contact with other Airlines (Participating Offer Airlines, POAs) during the development of an Offer and its subsequent conversion into an Order, and this is covered in the Interline section.
3.2.3 Processes

3.2.3.1 Booking

The following are the main processes identified within Order Management – Booking:

- Order creation begins when the Seller selects one or more Offer Items. The Airline constructs the Order within its own Order Management system ensuring that all the items requested are available and reserved for the customer. This will be done in such a way as to facilitate subsequent servicing and delivery.

- Payment information may be sent at the time of Order creation or at a later stage. The processing of this information by the ORA is discussed in the Payment & Ticketing section 3.3.

3.2.3.2 Introduction to Servicing

The following is an introduction to Order Management – Servicing:

- Prior to amending an Order the Seller must retrieve the Order from the ORA so that the information it has is the most up-to-date.

- The Airline is responsible to ensure that only those authorized entities are provided access. Authorization may be given based on the identity of the requestor and/or the amount of information provided in the request. The possession of certain information gives reasonable indication that the requestor is authorized to access the Order.

- Payment and Ticketing may or may not have taken place before any subsequent amendments are requested.

- Order retrieval provides mechanisms to retrieve various views of individual or lists of Orders. This includes retrieval of the content of a specified Order along with history of the Order. Order history includes all the amendments made in an Order for either voluntary or involuntary changes.

- Order amendment provides the means to change existing Orders, this will normally take place using the “Re-Shop” process. There is a Use Case covering this example in section 3.2.6.2.

- Order cancellation provides the means to cancel an Order, including the process of notifying the Seller of any and all conditions. This may trigger a Refund process.

- Order change notifications provide a way for Airlines to inform those managing Orders of unsolicited changes, for instance schedule changes.
A Seller may not make changes to individual Services from within an Order Item. However in the event of non-delivery of an individual Service, the value that may be attached to the Service can be used for accounting processes (e.g. refund in the case of non-delivery).

3.2.4 The relationship between NDC Offers and Orders

An Offer is accepted by selecting Offer Items which are subsequently converted into Offer Items at Order creation time.

The Order Items must maintain a one-to-one relationship with the Offer Items, and keep the same status (mandatory / optional) onwards into servicing. Consequently they will share the same content in terms of Services selected.

3.2.5 NDC Order Management Messages

3.2.5.1 Order Management - Booking

**OrderCreateRQ/OrderViewRS**

OrderCreate is an outbound message from Seller/Aggregator to Airline (and ORA to POA if applicable) that contains the details of a selected Offer and is used to request the creation of an Order by the ORA (or POA). Payment information may or may not be included within the request from Seller/Aggregator to ORA.

OrderView returns up to date contents of an Order (pricing information, guarantee time limit, Order status). When payment is part of the Order, issued accountable document references and payment Status (pending, declined, etc.)

**OrderRetrieveRQ/OrderViewRS**

The OrderRetrieve transaction retrieves a specified Order that matches one or more search criteria.

Search criteria may include any supported Order Reference information, which may be the Order ID, a PNR reference, a ticket or coupon/ document number, or other Airline supported Order reference and a Passenger Surname and Given Name.

*Note that if the Order retrieval request is initiated from the party that originally requested the Order creation, then an Order Reference is sufficient with the identity of the requesting party.*
If the Order retrieval request is initiated from a party that did not originally request the Order creation, then an extended security mechanism may be used to extend Order view access to the party, e.g. using a CustomerInputRQ/RS for an additional (bilaterally agreed upon) security challenge such as a security question and answer.

The Seller may additionally specify filters to constrain the response information sets, including: Trip itinerary, Flight segment, Passenger, Payment and accountable document information. If no filters are specified, all Order information is returned.

If a matching Order is found, the OrderView response will contain all Order information or filtered information (if filters were requested in the Order retrieval request.) If no matching Order is located, the OrderView response will include processing condition information and no Order information.

**OrderHistoryRQ/RS**

The OrderHistory transaction set requests the transaction history and audit trail for a specified Order.

**OrderListRQ/RS**

The OrderList transaction set retrieves a list of Orders that match one or more search criteria.

**The mechanism by which an Airline guarantees inventory is not in the scope of the standard**

**3.2.5.2 Order Management – Servicing**

**OrderChangeRQ/OrderViewRS**

The OrderChange/View transaction set requests modifications to an Order by specifying which Order Items to change and what to change them to. The updated view of the Order is returned.

**OrderCancelRQ/RS**

The OrderCancel transaction set requests the cancellation of a specified Order, and returns confirmation of cancellation.

**OrderChangeNotif/Acknowledgement**
The OrderChangeNotif transaction sends an unsolicited notification of an involuntary change to an Order. The Acknowledgement message may be returned to acknowledge receipt of the notification.

**ItinReshopRQ/RS**

The ItinReshop transaction set passes new shopping requests to an Airline to replace existing specified Order Items in an Order or for new shopping requests to add to an existing Order. Airline responds with new Offers within the context of the existing Order. May also used to re-price an Order, or provide details of residual value following a change to an Order.

**OrderRulesRQ/RS**

The OrderRules transaction set requests the rules, change and penalty fees applicable to a specified Order.

**CustomerInputRQ/RS**

The CustomerInput transaction set supports other NDC transactions by providing discrete-but related-functional capabilities for customer authentication and 3D Secure Payment Authentication. Supported functionality includes: PIN Phrasing Scheme Membership, Traveler authentication, 3-D Secure Payment Protocol.

**OrderHistoryNotif/Acknowledgement**

The OrderHistoryNotif transaction set sends an unsolicited Order history notification message. The Acknowledgement message may be returned to acknowledge receipt of the notification request.

3.2.6 Use Cases - Order Management

3.2.6.1 Use Case 4 - Basic Order Creation

**Principal actors**

- Customer (two Travelers)
- Seller/Aggregator
- Offer Responsible Airline (ORA)

**Description**

Two travelers based in India would like to visit their family in Washington. They have previously shopped for flights and services and would like to accept the Offers that has been presented to them by the Seller.
This Use Case describes the process of creating an Order for two Recognized Travelers (based on Frequent Traveler details, names provided at the time of shopping).

Preconditions/Assumptions

- The ORA and Seller/Aggregator have valid commercial agreements in place between them and have taken steps to ensure that they are compliant with any applicable competition law or regulation.
- The Travelers have previously communicated to the Seller/Aggregator details such as Frequent Traveler, names, contact...
- Each Offer has its unique OfferID and they have been stored by the Airline. (The mechanism by which Offers are being tracked, stored in the Offer Management System of an Airline are not in scope of the NDC Standards).

### Generic Use Case - Order Creation

<table>
<thead>
<tr>
<th>Seller / Aggregator</th>
<th>ORA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seller sends Order request using previous shopping elements to ORA</td>
<td>ORA receives the Order request and processes it through its Order Mgmt. system</td>
</tr>
<tr>
<td>OrderCreateRQ</td>
<td>ORA validates all conditions</td>
</tr>
<tr>
<td>ORA creates the Master Order with an OfferID</td>
<td>ORA responds to Seller, and OrderID, Services, payment TL and disclosures</td>
</tr>
<tr>
<td>Seller is in possession of an Offer's terms and conditions associated with that Order</td>
<td>OrderViewRS</td>
</tr>
</tbody>
</table>

### Basic Order Creation

**Steps to follow in the process**

1. An Offer from a previous shopping session is selected. The Offer includes a premium seat on both flights from BOM to JFK and JFK to IAD.
2. The ORA receives a request for Order creation from the Seller/Aggregator in the form of an OrderCreateRQ message. The message includes the Shopping Response ID, the OfferID and the OfferItemID.

### OrderCreateRQ

The message include:
- Seller/Aggregator information
- Origin & Destination BOM-IAD, Time, Frequent Traveler 12345678999
- Traveler Information Name, Contact
- ShoppingRS ID 12345678999
- OfferID 23 OfferItemID #123454-84948

3. The ORA creates the Master Order in its system which generates an OrderID.

4. The ORA responds to the Seller/Aggregator with an OrderViewRS message which includes, but is not limited to:

- OrderID
- OrderItemID
- All ServiceIDs
- Disclosure requirements such as Operating carrier (if different from marketing), Surcharges, Taxes, Carrier-imposed fees, Baggage.

Other components of the Offer. The response may also include, but is not limited to: The Order rules (e.g. refundable, non-refundable), payment time limit…

5. Seller/Aggregator receives the OrderView response from the ORA and displays the details to the customer.

### OrderViewRS

Airline KronosAir

OrderID 12347TILK9
OrderItemID P2-32H-HH Price $1750
ServiceID F331 PREMIUM SEAT BOM JFK 20A
ServiceID F332 PREMIUM SEAT JFK-RJ 16D

Payment Time Limit: Expiration time stamp 2015-10-27 23:59:00

In addition, the message may include:
- Payment time limit, other time limits
- Acceptance rules
- Price values broken out (fare, surcharges, carrier-imposed fees etc. YQ/YR)
- Disclosure date such as operating carrier, baggage allowance and charges, etc.

**Message: OrderViewRS**

**Preconditions/Assumptions**

The customer, or the Seller/Aggregator acting on behalf of the customer, is in possession of an OrderID, conditions associated with that Order, and terms of payment.
3.2.6.2 Use Case 5 – Order change (Change of Flights) Re-shopping

**Change of Flights - Order Mgmt.**

<table>
<thead>
<tr>
<th>Seller / Aggregator</th>
<th>ORA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seller sends a request to the ORA to change an existing flight segment in an Order</td>
<td>ORA validates the request against rules and conditions in Customer’s existing Order</td>
</tr>
<tr>
<td>ItinReshopRQ</td>
<td>ORA searches internally for products that meet the criteria</td>
</tr>
<tr>
<td>Seller displays the alternative offers to the Customer</td>
<td>ORA responds to Seller with the new offers</td>
</tr>
<tr>
<td>ItinReshopRS</td>
<td></td>
</tr>
<tr>
<td>Customer selects an alternative offer. Seller initiates the Order Change process</td>
<td>ORA receives the OrderChangeRQ and updates the Order based on the selected Offer details</td>
</tr>
<tr>
<td>OrderChangeRQ</td>
<td>ORA responds to the Seller with details of the updated Order</td>
</tr>
<tr>
<td></td>
<td>OrderViewRS</td>
</tr>
</tbody>
</table>

**Change of Flights – Order Management**

**Principal actors**
- Customer
- Offer Responsible Airline (ORA)
- Seller/Aggregator

**Description**
A customer based in Paris in possession of a confirmed Order for traveling from CDG to LHR needs to change his date of departure. The ORA’s OrderID is 55V5-5TUL.

This Use Case describes the process of a customer initiating a change to his travel date prior to the departure of the first flight. There are no changes to routing or carriers. The ORA returns an alternative to the Seller/Aggregator per the shopping request.

**Preconditions/Assumptions**
- The ORA and Seller/Aggregator have valid commercial agreements in place between them and have taken steps to ensure that they are compliant with any applicable competition law or regulation.
There are no change restrictions for the ORA on this Order
- Travel has not commenced
- Codeshare flights are not involved

Steps to follow in the process

1. The Seller/Aggregator retrieves customer’s Order details from the ORA using the OrderRetrieveRQ & OrderViewRS message pair.

2. The Seller/Aggregator initiates an ItinReshopRQ to change the outbound flight at an earlier date. The message will include ORA’s OrderID, the new proposed itinerary (e.g. new travel dates), Seller/Aggregator Information. The change affects the ORA’s OrderItems.

3. The ORA retrieves the Master Order in its Order Management System.

4. The ORA determines that it can fulfill the re-shop request

5. The ORA performs a check that the request does not generate any violations of appropriate competition laws or regulations.

6. The ORA transmits its consolidated Offer(s) to the Seller/Aggregator via ItinReshopRS, which includes all of the flight Offers it wishes to make in response to the re-shop request.
   The message will include:
   - ORA Reshop ResponseID (new element),
   - ORA OrderID (existing),
   - ORA Re-shop Offer / OfferID,
   - ORA OfferItemID(s) (new),
   - ORA ServiceID(s) (new),
   - Settlement values details: fare, surcharges, carrier-imposed fees (e.g. YQ/YR).
   - Acceptance rules, disclosure requirements such as: Operating carrier (if different from marketing), Surcharges, Taxes, Carrier-imposed fees, Baggage, Seat assignment fees
   - Other components of the Offer, Government and fare Management filing requirements

7. The customer selects to change his existing itinerary to one of the new Offers.
8. The Seller/Aggregator sends an OrderChangeRQ to the ORA. The message will include the Order amendment information:
   - ORA's Reshop ResponseID (new element)
   - ORA OrderID (existing)
   - ORA's selected Reshop OfferID
   - ORA's selected OfferItemID(s) (new)

9. The ORA receives the OrderChangeRQ and updates the Order with new data.
10. The ORA responds to the Seller/Aggregator with an OrderViewRS which includes but is not limited to:
   - ORA's OrderID (unchanged)
   - ORA's OrderItemID (new)
   - ORA's ServiceIDs (new)
   - New flight details, including but not limited to: Flight number(s), Board/off points, Segment status, Passenger's name...

**Post Conditions**
The Seller/Aggregator, acting on behalf of the Customer, is in possession of an updated Order.

### 3.2.6.3 Use Case 6 - Order Management / Shopping for a Standalone Ancillary after an Order has been created

**Principal actors**
- Customer
- Seller/Aggregator
- Offer Responsible Airline (ORA)

**Description**
A customer is traveling from Bogota to Miami for business purposes. He would like to visit the Lounge in Bogota because he has a long wait before the flight departure.

This Use Case describes the process of adding a standalone Ancillary to an existing Order.
Preconditions/Assumptions

- The Customer communicates to the Seller/Aggregator his travel plan which includes travelling from Bogota to Miami and informs of his intention to add Lounge Access in Bogota (as a standalone Ancillary) to the Order.

- The ORA may or may not generate a dynamic price for the Lounge Access options. Whilst the ServiceListRQ does not support Offers and Offer Items, it does return Services. These services can carry a price, and it is up to the ORA to correctly reference these prices in their Offer/Order Management System. For example, in this use case they may wish to use the Customer’s existing OrderID as a reference.

- The Seller/Aggregator chooses to use Airline Profile data to determine if the ORA is happy to receive this ancillary shopping request, it is assumed the ORA will have specified within their Airline Profile that they are an NDC carrier and that they wish to receive ancillary shopping requests for this specific airport/point of origin.
The Seller/Aggregator may choose to send separate shopping requests to other ORAs, either to increase the range of options they can present to the Customer alongside those of the original ORA, or in the situation where the ORA does not return a satisfactory response.

Any ORAs and the Seller/Aggregator have valid commercial agreements in place between them and have taken steps to ensure that they are compliant with any applicable competition law or regulation.

**Steps to follow in the process**

1. The Seller/Aggregator retrieves customer’s Order details from the ORA using the OrderRetrieveRQ & OrderViewRS message pair.

2. The Seller/Aggregator sends a shopping request for the Lounge Access in Bogota to the ORA in the form of a ServiceListRQ. The message will include:

   - Required Attribute “Lounge Access”.
   - Qualifiers such as:
     - Existing OrderID
     - Origin & Destination (BOG-MIA)
     - Travel date
     - Flight number
     - Departure time

3. The ORA receives the ServiceListRQ and queries its Offer Management System.

4. The ORA determines which of its Services they wish to include in the response they will return to the Seller/Aggregator, along with the price (which may or may not be dynamically determined).
5. The ORA generates and sends a ServiceListRS to the Seller/Aggregator. The message will include:

- Shopping Response ID
- Service ID
- Service Name
- Service Description (e.g. Lounge provides free Wi-Fi and complimentary international buffet).
- Service Price (which may or may not be dynamically determined)
- Rich content
- Description of the Service(s)
- Offer Time Limit

ServiceListRS

The message may include...
- Shopping Response ID
- Service ID
- Service Name
- Service Description (e.g. Lounge provides free Wi-Fi and complimentary international buffet).
- Service Price (which may or may not be dynamically determined)
- Rich content
- Description of the Service(s)
- Offer Time Limit

6. The Seller/Aggregator receives the ServiceListRQ and presents the Service(s) to the Customer.

7. The Customer selects one of the Lounge options

8. The Seller/Aggregator generates and sends an OrderChangeRQ to the Seller/Aggregator. The message will include...

- Shopping Response ID
- Existing Order ID
- Selected Service ID
- Payment Information

OrderChangeRQ

The message may include...
- Shopping Response ID
- Existing Order ID
- Selected Service ID
- Payment Information
9. The ORA receives the OrderChangeRQ and begins to update the Master Order, creating an OrderItem in which to house the ordered Service.

10. The ORA processes the payment, and upon authorization, issues the accountable document for the Lounge Access. The ORA chooses not to make any modifications to existing accountable documents, as the existing Order Item containing the flights remains unchanged.

11. The ORA updates and finalizes the Master Order, including details of the processed payment and accountable document numbers.

12. The ORA generates and sends an OrderViewRS to the Seller/Aggregator. The message will include…
   - OrderID (existing, and unchanged)
   - OrderItemID (existing, for the flight(s))
   - OrderItemID (new, for the Lounge Access)
   - ServiceID (existing, for the flight(s))
   - ServiceID (new, for the Lounge Access)
   - Accountable document numbers

```
<table>
<thead>
<tr>
<th>OrderViewRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>OrderID: O45sw72r453</td>
</tr>
<tr>
<td>OrderItemID O22hhh44 – Price $300</td>
</tr>
<tr>
<td>ServiceID G10</td>
</tr>
<tr>
<td>XX488 BOG-MIA, 2pm</td>
</tr>
<tr>
<td>OrderItemID Olh7363 – Price $50</td>
</tr>
<tr>
<td>ServiceID L424</td>
</tr>
<tr>
<td>Lounge Access</td>
</tr>
</tbody>
</table>
```

In addition, the message may include…
- Accountable document numbers, associated to the relevant Offer Items/Services

13. The Seller/Aggregator displays details of the updated Order to the Customer.

Note: The Seller/Aggregator may also choose to send a separate shopping request to Airlines that are not involved in the existing Order. The Seller/Aggregator may choose to do this at the same time as they send the request to the original ORA to provide them with a range of options they can display to the Customer, or they may choose to do this if they don’t receive a response from the ORA, or if the options within this response are not suitable.

This process would be a new shopping instance, and would follow the principles and process flows outlined in section 3.1.1. If the Customer chose one of the options from a different ORA, this would result in a separate, independent Order being
created by that ORA – the Customer would be in possession of two separate Orders.

Post Conditions
The Customer is now in possession of their updated Order which now includes Lounge Access in Bogota.
3.3 Payment & Ticketing

Please note that this section is a high level overview of payment & ticketing principles and processes, and a description of the messages available. This does not mention specifics relating to ticketing resolutions, nor go into detail about what kind of authorization may be required, either to process a payment, or validate the credit-worthiness of a particular party.

When using NDC it is the ORA that is responsible for authorizing payment and subsequently issuing accountable documents. Their responsibility continues into managing and controlling modifications to accountable documents when an Order has been serviced – including any additional collection or residual value processing.

The Seller is doing the servicing, requesting changes to an Order, and it is only as a result of the changes to the Order that the ORA considers modifications to accountable documents.

Where the ORA is using E-tickets and EMDs, they will be bound by existing resolutions, and these documents will be issued on the Airline’s own stock.

3.3.1 Principles

3.3.1.1 Payment

The Seller transmits payment data to the ORA. They may do so at the time of Order creation/servicing, or afterwards using the AirDocIssueRQ message. It is up to the ORA to decide which payment methods are accepted (and these may be different per Seller).

When the payment details are received from the Seller, the ORA validates the payment method used and performs necessary authorization which may rely on specific authentication data transmitted in the message (e.g. a secure token). The ORA will validate that the Payment Time Limit is adhered to. If the payment time limit has been exceeded, it is up to the ORA whether to reject or accept. As a result of exceeding the time limit, subsequent changes to the Order are the responsibility of the ORA. The above also applies to the Deposit Time Limit.

Parties transmitting payment card data shall be responsible for PCI DSS compliance. It is not in the scope of this document to suggest any particular PCI compliance strategy, methodology or tools, and it is assumed that any party using the API will establish its own compliance strategy using methodology and tools it finds most appropriate.
3.3.1.2 Ticketing

An Order must exist before an accountable document is issued. It is the ORA who is responsible for the issuance of accountable documents, and it is their decision as to which documents to issue and how they are associated to individual Order Items and Services in compliance with applicable resolutions.

It is the responsibility of the ORA to communicate document and coupon numbers, and any other necessary information, to relevant and authorized parties.

The association between the individual Services and documents/coupons should be stored in the Airline’s Order Management System – one way to achieve this is by associating the relevant Service IDs with the document/coupon numbers. This helps to facilitate revenue accounting & settlement processes.

These principles continue to apply to modifications to Accountable Documents.

It is expected that modifications to documents are a result of a change to the Order. The change may have been initiated by a Seller, and it is up to the ORA to ensure prior to the change to the Order that the Seller was authorized to initiate this change.

3.3.2 Payment & Ticketing Messages

AirDocIssueRQ/AirDocDisplayRS

AirDocIssueRQ is used to convey payment information between Seller/Aggregator and ORA related to specified Order Item(s) in advance of accountable document issuance. Once the information has been received and payment has been authorized, the ORA will issue the relevant accountable documents in compliance with applicable resolutions. For every Service in the specified Order Items, there will be an association with one of the issued accountable documents.

The use of AirDocIssueRQ is not limited to transmitting payment information once an Order has been created, but it can also be used within a servicing flow.

AirDocDisplayRS is the response to AirDocIssueRQ and is used to convey details of the issued accountable documents. The specific data elements are outlined below.

AirDocDisplayRQ/RS

The AirDocDisplayRQ transaction set requests an Airline to return document details. If the details provided are not sufficient to uniquely identify a single document, a list of documents meeting the specified criteria may be returned in
the response. If the details provided do not match those of any accountable document (that the sender is authorized to receive) the response will indicate no matching document was found.

The data returned as part of an AirDocDisplayRS may include document and coupon numbers, the final paid amount (which may come with a breakdown of taxes fees and charges), the issuing Airline etc.

AirDocHistoryRQ/RS

The AirDocHistory transaction set allows to request an Airline to return the history of accountable documents related to a specific Order.

3.4 Interline Shopping, Order Management and Payment & Ticketing

Note: The PDMG WG Interline Task Force has a mandate until September 2016 – the NDC standard may evolve to reflect any new requirements that arise from their remaining work.

3.4.1 Interline Overview

NDC facilitates communication between interline partners, allowing them to construct and communicate Offers and Orders in which both parties participate. As previously discussed, all NDC shopping requests are received by an ORA from a Seller (perhaps via an Aggregator), and it is the ORA who is responsible for responding with suitable Offers. Where the ORA cannot fully meet the request and is unable to respond with a complete Offer, or they wish to expand the range of products they combine into the final combined Offer, they may choose to query a POA using NDC messages.

As with online itineraries, a single Airline, the Offer Responsible Airline (ORA), will be the owner of the Offer(s), the Master Order and any related accountable documents. Any other Airline participating in the itinerary is known as a Participating Offer Airline (POA). It is the ORA who will initiate communication with each and every POA and the NDC messages support a full spectrum of functions between these Airlines - from initial Shopping through Order creation and confirmation, to advice of accountable document numbers and any subsequent servicing requirements.

The messages also support a new key concept – “Settlement Values”. These are designed to streamline the interline settlement process, by allowing the POA to explicitly state a “settlement value”, the amount it wishes to receive for any services it provides. This may include relevant taxes, fees and charges. The
settlement value is not a customer facing price, but is only visible between the Airlines involved in the Offer/Order. At the time of Offer construction, it is up to the ORA whether or not to include the POA in the Offer - the Settlement Value is one of the factors it will use to make its decision.

The concept of Settlement Values not only simplifies the settlement process, but also provides both the ORA and POA with much greater visibility of the value of the service they are providing. This is in contrast to today where airlines involved in an itinerary may only discover how much their segment is worth after a passenger has travelled.

3.4.2 General Principles and Assumptions

- Whilst not mandatory, it is assumed within our explanations that both the ORA and any POAs have Offer & Order Management Systems in place.
- The ORA builds the Offer (and the itinerary that may form part of the Offer) by contacting each POA individually. A Seller/Aggregator does not construct the Interline Offer themselves. If a Seller/Aggregator contacts two ORAs, receives Offers from both, and allows their Customer to select one from each, the result would be two separate, standalone Orders – they would not form an “Itinerary”, but simply two separate and independent Orders/Journeys.
- These transactions will take place between Airlines that are covered by, at a minimum, an interline traffic agreement.
- The ORA agrees to settle with the POA on the settlement value returned in a shopping response, and agreed upon at the time of Order creation, unless otherwise agreed bilaterally.
- The ORA holds the Master Order and is ultimately responsible for any changes to it.

The ORA, POA, the Seller/Aggregator, and other parties subject to the data exchange will have valid applicable agreements in place between them and have taken steps to ensure that they are compliant with any applicable competition law provisions and regulation, data privacy and protections regulations and any other laws and regulations to which they may be subject. Please see Legal Considerations in Annex1 for further guidance.
3.4.3 Full Interline process

The full interline process can be summarized as per the illustration below.

**3.4.3.1 Interline Offer Management - Shopping**

The Interline shopping process begins as per an online process – the Seller/Aggregator sends a shopping request to the ORA. When the request is received by the ORA, they determine that they wish to combine a POA’s services with its own to form a complete, relevant Offer, whether this is because they cannot provide a satisfactory response to the request on their own services, or they wish to enhance their Offer with services provided by a POA.

The ORA, having made this determination, may then use the Airline Profile or other data sources (e.g. a schedule, bilaterally exchanged data, etc.) to decide which POA(s) to query.

The ORA will then send a shopping request (in the form of an AirShoppingRQ) to the relevant POA(s).

When received, the POA will process the request in a similar way to a request from a Seller/Aggregator, querying their Offer Management System to come up with an
Offer that meets the criteria in the request as fully as possible (which may include any additional ancillary items it wishes to respond with).

Some of the additional considerations for a POA in an interline scenario may include:

- The need to take into account any applicable regulations that could apply to the itinerary. For example, they need to ensure that the correct baggage allowance & charges are applied to the itinerary. Another example is that by participating in the Offer, they will not be in breach of any laws or regulations.

- A decision as to what Settlement Value they will apply to their Offer/Services. In most cases, the POA will specify to the ORA how much they require at settlement for the services they deliver. Settlement Values, pricing and settlement in general is covered earlier in section 2.4.6 of the Guide.

A key difference between this process and the indirect channel today is that it is often the GDS that would put together an itinerary, and it is they who would police the rules and regulations that apply to the itinerary they have built – for example any traffic restrictions, applying the correct baggage allowance and charges, competition law compliance etc. would be taken into account before an itinerary was finalized and communicated to the Airlines involved.

3.4.3.2 Interline Offer Management - Offer Construction

Both an ORA and any POAs involved in an Interline Offer will continue to apply the principles of Offer Management outlined in section 3.1.1.2 relating to the structure of Offers.

From the POA’s perspective, they will construct their Offer(s), each featuring one or more Offer Items (with each Offer Item containing one or more Services), as if they had received the shopping request from the Seller/Aggregator, and return them to the ORA.

When the ORA receives the POA’s Offer(s), they will combine them with their own Services to form completed, final Offers to be returned to the Seller/Aggregator. However, the ORA must respect the integrity of the POA’s Offer(s). Please see the following two examples to help describe this further:

- The ORA cannot choose individual Services from within an Offer Item - they must select an Offer Item as a whole if they wish to use this as part of the final Offer(s).
- The ORA must comply with other requirements of a POA Offer/its structure - for example, if all Offer Items within the POA’s Offer are mandatory, the ORA must include each of these within their combined, final Offer(s).
How the Offer is structured and combined by the ORA is a proprietary decision and will be based on the ORA’s Offer Management System capabilities and their business decisions – it does not have to match the POA’s Offer one for one.

For example, when the ORA creates its Offer, it may include a POA’s flight/alongside its own within an Offer Item as part of on Service (Figure 2 below), as separate Services (Figure 3 below) or as separate Offer Items. Even though this was a POA Offer Item, it is not mandatory that this has to be a separate Offer Item within the ORA’s Offer.

The ORA may choose to include the POA’s services and its own within one Offer Item so that this becomes an unbreakable unit when it comes to Order Servicing in future.

**Figure 1 AirShoppingRS POA to ORA**

**Figure 2 AirShoppingRS ORA to Seller/Aggregator**
3.4.3.3 Interline Offer Management - Shopping Principles and Assumptions:

- Shopping messages are always initiated by the ORA to the POA.
- An ORA may be required to send shopping messages to multiple POAs to complete the journey requested.
- Seller/Aggregators will never query POAs directly to build an itinerary – the ORA does this as part of the creation of their Offers.
- In an interline scenario, an ORA will combine a POA’s Offer within its own. In doing so, it must follow the principles and structure of Offer construction as described in section 2.4.2.3 – the ORA cannot break a POA’s Offer Item and use individual Services within the final Offer it will return to the Seller/Aggregator.
- Regardless of the type of message, complete flight details will be sent in the request to the POA if the service is applicable to a specific flight (e.g. flight number, date, cabin)

3.4.3.4 Airline Profile in Interline

The Airline Profile has two potential uses in an Interline scenario.

1. If an ORA has chosen to maintain an Airline Profile, a Seller/Aggregator may use this information to determine that this Airline accepts shopping requests for a particular O&D pair (the Airline may not operate each segment, even though they will accept these requests - the Airline Profile data refers to routes/markets the ORA specifies it is willing to accept requests for).
It follows that as per the description of the Airline Profile in section 3.1.2, the Airline Profile does not replace today’s schedule, it does not simply list routes the ORA operates, but rather it outlines the routes/markets the ORA is willing to receive shopping requests for.

2. The ORA may choose to use Airline Profile data to determine which POA(s) can help it complete an itinerary (alongside its own services) and fully meet a shopping request with its Offer.

The POA must publish its Airline Profile data if the ORA is to use the data to help with this determination.

The principles of using the Airline Profile in terms of how the ORA and POA send, receive and manage this data are as per the Airline Profile section 3.1.2.

3.4.3.5 Interline Order Management - Booking

As per the Online flow, when a Customer has selected one of the ORA’s Offers, the Seller/Aggregator will send an Order Create request (using the OrderCreateRQ message) to the ORA.

At this stage the ORA will begin creating the Master Order, having first validated that the Offer Time limit has not passed (as well as validating that any other conditions or rules have been met). The ORA will itself send an OrderCreateRQ to each POA that formed part of the Offer/Itinerary – and this will contain amongst other data elements, the ORA’s OrderID, and the POA’s OfferID(s), OfferItemID(s) and ServiceID(s) as applicable.

When received, each POA will verify that the Offer Time Limit has not passed (again, plus validating against any other conditions) and then create an order in its own Order Management System, referencing the ORA’s OrderID. It will generate and send an OrderViewRS message, sending all relevant information about its order to the ORA.

When the OrderViewRS is received by the ORA it will apply the POA’s information, such as the POA’s OrderID, to the Master Order, finalize the Order, and send the necessary information to the Seller/Aggregator.

Whilst the NDC standard does not specify at which point in the flow an Inventory Guarantee is applied to either the Offer or the Order, in an Interline scenario it is logical that an ORA does not apply an inventory guarantee against an entire Offer/Order at any stage in the process unless it first has an inventory guarantee from the POA as part of their Offer/Order.
The ORA may choose to guarantee inventory on its own services even if the equivalent guarantee has not been applied by the POA, but of course they should not communicate to the Seller/Aggregator that inventory is guaranteed against the entire Offer/Order until this guarantee is received from the POA.

**Interline Order Construction Principles**

Generally the POA should not refuse the Order create message unless there is no availability for an offer that was made subject to availability, specified time limits have been exceeded, or any of the components of the order are in contradiction with regulatory restrictions.

Today, the Validating Carrier, i.e. under end to end NDC usage the ORA, is responsible for applying taxes/fees/charges under PSC Resolution 785.

### 3.4.3.6 Interline Order Management – Payment & Ticketing

As per section 3.3, the ORA is responsible for issuing accountable document(s) following an Order creation/payment. This does not change in an Interline scenario. Once issued, the ORA will subsequently notify all POA(s) on the document of relevant document numbers. The same principles and process also apply to any modification of accountable documents that may be required following the Servicing of an Order.

The POA may wish to indicate within their shopping response to the ORA their preferences in terms of which Accountable Documents they would like to see issued (e.g. EMD-A vs EMD-S), but it is ultimately the ORA’s prerogative and responsibility as to which documents to issue and when, staying within the framework of applicable resolution(s). Notification of document numbers from ORA to POA is accomplished using an interline-only message - AirDocNotifRQ.

If the ORA chooses to delegate their responsibility for issuing/validating documents, then it is responsible for passing all of the data required for the validator to issue them and to then facilitate the required settlement. It is assumed that any 3rd party validator will have the capability of querying the ORA and the POA for Order transaction history for audit purposes.

### 3.4.3.7 Interline Order Management - Servicing

As per Online Order Servicing, this will not be covered in detail in this release of the Implementation Guide. PADIS approved an Interline Order Servicing BRD in September 2015, however this BRD was limited in scope to two use cases. The PDMG WG Interline Task Force has a mandate to produce a further Interline Order Servicing BRD during 2016, with a view to covering a much wider range of use cases and requirements.
Two principles taken from the PDMG WG Interline Task Force Interline Order Servicing BRD are mentioned below, but please note that this is a very limited view of Interline Order Servicing and is not an exhaustive list of principles.

- The ORA and POA may bilaterally agree that the POA assumes responsibility for protecting the passenger when the passenger’s travel on the POA involuntarily changes. This may require the POA assume the role of sub-ORA and shop other POAs (sub-POAs) in order to fulfill this obligation.

- The ORA will send notification to the POA of any flight changes within an Order on which the POA participates. This notification applies not only when the POA’s services are impacted directly, but for all changes. Depending on the Offer/Order conditions, this may have an impact on the Settlement Value agreed between the POA and ORA, and may also impact the POA’s ability/wishes to remain as part of the Order (for example a new POA featuring within an Order as part of an itinerary may result in a violation of traffic restrictions). Carriers may bilaterally agree otherwise.

3.4.3.8 Interline Settlement

NDC supports the ability for POAs to specify a “Settlement Value” per Service or OfferItem/OrderItem. These are designed to streamline the interline settlement process, by allowing the POA to explicitly state a Settlement Value, the amount it wishes to receive for any services it provides. This may include relevant taxes, fees and charges. The settlement value is not a customer facing price, but is only visible between the Airlines involved in the Offer/Order. At the time of Offer construction, it is up to the ORA whether or not to include the POA in the Offer - the Settlement Value is one of the factors it will use to make its decision.

The concept of Settlement Values not only simplifies the settlement process, but also provides both the ORA and POA with much greater visibility of the value of the service they are providing. This is in contrast to today where airlines involved in an itinerary may only discover how much their segment is worth after a passenger has travelled.

3.4.4 Interline Messages

All communication requirements for shopping and Order Management between the ORA and POA can be facilitated by using the existing NDC messages.

At the moment, the only Interline specific message is…
AirDocNotifRQ: This message is reserved for interline communication from the ORA to the POA. It serves to communicate accountable document numbers (e.g. ET, EMD-A, EMD-S) to the POA(s) named in the documents.

3.4.5 Other Interline Considerations

3.4.5.1 Baggage Considerations

The ORA is responsible for applying relevant governmental regulations (e.g. US DOT and CTA) or industry resolutions (e.g. IATA Tariff Composite Resolution 302) in determining the carrier whose baggage rules apply and resulting applicable disclosure requirements when constructing an Offer. This Airline is the Baggage Determining Carrier (BDC).

Based on the relevant regulation/resolution that would apply to the itinerary, if the ORA is the BDC they will apply their own baggage allowance and charges to the Offer. Alternatively, if the ORA is not the BDC, they will identify which POA is the BDC, and apply the correct baggage allowances and charges. The correct allowances and charges are determined by either:

- Information already known to the ORA (e.g. an internal database)
- Querying a published baggage information source, which may or may not be a central data repository of baggage data.
- Sending a BaggageAllowanceRQ or AirShoppingRQ to the BDC, and receiving the information as part of the response.

If the itinerary has more than one BDC (e.g. stopover on Resolution 302 applicable itinerary), each possible BDC POA, the ORA will need to be query their source of baggage information and apply each of the correct allowances and charges for the relevant portion of the offer.

It is assumed that the Baggage Determining Carrier’s checked baggage allowance and charges are applied and communicated to the Seller/Aggregator by the ORA as part of any Offer, and that this information is also communicated to any carrier in participating in the Offer. It may be useful for each Airline to receive this information in advance of any Offers being created and sent, although this is not mandatory.

The ORA may offer its prepaid baggage service(s) if permitted and specified as such in the response from the Baggage Determining Carrier.

Each Airlines participating in an Offer, including the ORA, must provide carry-on allowance and embargo data for all Operating Carriers involved in the Offer, and
this information needs to be returned to the Seller in the shopping response per Airline.

The POA may return baggage service taxes/fees/charges to the ORA, as applicable.

The ORA is responsible for communicating baggage taxes/fees/charges to the Seller/Aggregator.

3.4.5.2 Codeshare Considerations

In most cases, interline NDC processes can be applied to automated codeshare situations - the ORA would act as marketing carrier and the POA would act as operating carrier, and the ORA would send a shopping request to the POA as per the processes described above.

In certain situations, a POA may wish to query another Airline (a “sub-POA”) using NDC shopping messages to create its portion of the Offer (i.e. it will combine another Airline’s Offer with its own in the same way an ORA would involve a POA). This is especially applicable for automated codeshare situations.

In this instance, it is imperative that the “sub-POA” have full knowledge of all parties to the Offer. As such, the true ORA and all POAs in the cascading message path must be disclosed. The term “True ORA” refers to the ORA that received the request from the Seller/Aggregator – because a sub-POA would receive a shopping request from another Airline, without the “True ORA” being designated, they may incorrectly assume the POA that sent them the request is the ORA.

Also, it should be noted that the Settlement Value returned from a Sub-POA to the POA must be equal to the Settlement Value returned from the POA to the ORA. This is a requirement to ensure the correct settlement between the validator and service provider.

It is not mandatory that a Sub-POA returns a Settlement Value - this value could be based on a separate commercial agreement outside of the NDC transaction cycle. This Settlement Value could be applied to the Sub-POA’s Service by the POA as it is combining the Sub-POA’s Services with its own into a combined Offer, resulting in correct Settlement by the validator.

3.4.6 Use Cases – Interline
3.4.6.1 Use Case 7 – Interline Affinity Shopping

Principal actors

- Customer
- Seller /Aggregator
- Offer Responsible Airline (ORA)
- Participating Offer Airline (POA)

Description

A customer based in London decides that he would like a beach holiday, but doesn’t have a particular destination in mind. This Use Case describes the process of shopping for flights using affinity criteria on multiple marketing carriers.

Preconditions/Assumptions

- The ORA and all POAs have valid commercial agreements in place between them and have taken steps to ensure that they are compliant with any applicable competition law or regulation.
- The Customer communicates to the Seller their intended travel plan which includes travelling to a beach destination from their home city.
- In this use case the ORA and POA(s) do not return any ancillaries, bundled or otherwise, to the Seller/Aggregator as part of the Offer(s), but it should be noted that affinity shopping supports this functionality.
- If the Seller/Aggregator chooses to use Airline Profile data to determine which ORAs to send their Shopping request to, it is assumed the ORA will have specified within their Airline Profile that they are an NDC carrier and that they wish to receive affinity shopping requests for beach destinations.
- This illustration focuses on the flow to one particular ORA, but the Seller may have contacted multiple ORAs simultaneously.
Steps to follow in the process
5. The Seller/Aggregator sends a shopping request to the ORA using the Affinity criteria “beach destination”.
   - **AirShoppingRQ:**
     - The message may include:
       - Seller/Aggregator information
       - Affinity Criteria = beach
       - Any other travel/traveler information

6. The ORA receives the shopping request and determines possible destinations which meet the Affinity criteria of “beach destination” using internal logic.

7. The ORA builds connections using known schedules and rules (such as minimum connect times) for the ORA and any interline partners.

8. The ORA determines that it cannot fulfill the entire request and needs to query POAs.
9. The ORA initiates an internal process for their online portion of the Offer (i.e. it determines which of its own services it wishes to include in the Offer/s it will return to the Seller/Aggregator).

10. The ORA generates a list of POAs that may have valid flight Offerings that meet the Customer’s needs, and are able to respond to an AirShoppingRQ.
   - The list may be generated using the Airline Profile data but this is not mandatory. The ORA may choose to generate its list using internal data.
   - The ORA validates that appropriate commercial agreements exist with the POAs in the generated list.
   - The ORA performs a check that the request does not generate any violations of appropriate competition laws or regulations.

11. The ORA generates and sends an AirShoppingRQ message to the POA(s)

<table>
<thead>
<tr>
<th>AirShoppingRQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>The message may include...</td>
</tr>
<tr>
<td>• Proposed validating carrier</td>
</tr>
<tr>
<td>• The entire proposed itinerary, if known</td>
</tr>
<tr>
<td>• The true ORA</td>
</tr>
<tr>
<td>• Requested Travel Plan (O &amp; D) - i.e. the portion of the overall journey the ORA is expecting the POA to return offers for.</td>
</tr>
<tr>
<td>• Seller/Aggregator information</td>
</tr>
</tbody>
</table>

12. Each POA receives the AirShoppingRQ message and performs its own validation that the request conforms with commercial agreements and is not in contravention of competition law or regulation

13. Each POA determines what, if any, flight Offerings it wishes to return to the ORA.
   - Such flight Offerings may or may not meet all of the criteria set out in the request.

14. Each POA formats and sends an AirShoppingRS message to the ORA which includes all of the flight Offers it wishes to make in response to the original request.
15. The ORA receives the response messages from all POAs
   - The ORA determines which (if any) of the POA Offers it wishes to combine with its own and include in its response to the Seller/Aggregator
   - The ORA combines responses from all the POAs into unified Offer(s) to the Seller/Aggregator

16. The ORA transmits its consolidated Offer(s) to the Seller/Aggregator.

17. Offer(s) are presented to the Customer by the Seller/Aggregator.

Post Conditions
The Customer is in possession of Offer(s) which meet the ORA’s definition of “beach destinations”.

3.4.6.2 Use Case 8 – Add an Ancillary to an Existing Order, Interline Journey

Principal actors
  - Customer
Seller/Aggregator
Offer Responsible Airline (ORA)
Participating Offer Airline (POA)

Description
A customer has booked a long international holiday and decides they wish to enhance their onboard experience with premium meals on all of their flights. This Use Case describes the process of shopping for, and booking, ancillaries for all flights in an interline journey where an Order already exists.

Preconditions/Assumptions

- The ORA and all POAs have valid commercial agreements in place between them and have taken steps to ensure that they are compliant with any applicable competition law or regulation.
- An Interline flight itinerary has already been booked and a master Order resides in the system used by the ORA.
- The ancillaries are not inventory controlled.
- The Offer selection takes place within the Offer Time Limit
- Each ancillary is separately priced.
Steps to follow in the process

1. The Seller/Aggregator sends a shopping request to the ORA requesting Offers for premium meal ancillaries for flights on the ORA and POA.

   The message will include:
   - Seller/Aggregator Information
   - ORA’s OrderID: 011AA222
   - Associated existing flight information
   - Any other travel/traveler information

2. The ORA initiates an internal process for premium meals for its online portion of the Offer (i.e. it determines which of its own services it wishes to include in the offer/s it will return to the Seller/Aggregator).

3. The ORA generates and sends an AirShoppingRQ message to the POA(s)
4. The POA receives the AirShoppingRQ message and performs its own validation that the request conforms with commercial agreements and is not in contravention of competition law or regulation.

5. The POA determines what, if any, premium meal offerings it wishes to return to the ORA. Such offerings may or may not meet all of the criteria set out in the request.

6. The POA formats and sends an AirShoppingRS message to the ORA which includes all of the Offers it wishes to make in response to the original request.

7. The ORA receives the response messages from the POA. The ORA determines which (if any) of the POA offers it wishes to combine with its own and include in its response to the Seller/Aggregator.

The ORA combines responses from all the POAs into unified Offer(s) to the Seller/Aggregator.

8. The ORA transmits its consolidated Offer(s) to the Seller/Aggregator.
9. Offer(s) are presented to the Customer by the Seller/Aggregator.

10. Customer selects an Offer for their premium meals.

11. The Seller/Aggregator sends a request to add the selected premium meals to the existing Order referencing one of the Offers returned by the ORA.

12. The ORA modifies the master Order in its system.

13. The ORA formats and sends OrderChangeRQ to the POA to advise of the request to confirm.

14. The POA modifies the existing Order in its system.
15. The POA responds to the ORA with an OrderViewRS confirming the premium meals.

**OrderViewRS**

The message will include...
- POA’s ShoppingResponseID SR11111
- ORA’s OrderID 011AA222
- POA’s OrderID 033B8444
- ORA’s Order/ItemID 0999
- POA’s Order/ItemID 01222
  - POA’s ServiceID M10 (ORD-FRA)
  - POA’s Settlement Value - $50
  - Acceptance Rules

16. The ORA responds to the Seller/Aggregator with an OrderViewRS message.

**OrderViewRS**

The message will include...
- ORA’s ShoppingResponseID SR11111
- ORA’s OrderID 011AA222
- POA’s OrderID 033B8444

ORA’s Offer/ItemID OF1999 – Price $100

ORA’s ServiceID M25
- DEN-ORD

ORA’s ServiceID M85
- ORD-FRA

In addition, the message may include...  
- Acceptance rules  
- Payment rules and conditions  
- Disclosure date such as operating carrier, baggage allowance and charges, etc.

**Post Conditions**

The Customer is in possession of and OrderID with confirmed flights and premium meals, conditions associated with the Order and terms of payment.
4 Implementation support

4.1 Implementation Guidance

4.1.1 NDC evolves the Airline services landscape

(NDC) provides a unique opportunity to modernize how air travel is sold, opening up the prospects for Airlines to become more profitable by selling not just seats, but unbundled options such as Wi-Fi, lounge access, seat and menu choices, baggage options, etc.

It is important to understand that though NDC introduces opportunities to improve customer choice many things will remain the same.

For example when NDC is widely adopted Airlines will use the same sorts of passenger service systems (reservations, departure control, etc.) as was the case before NDC. Those systems may be adapted for NDC, but NDC will not require a fundamental change in the passenger service systems of an Airline, whatever the business model those Airlines operate.

For distribution, though some indirect sales will be made through, other sales will continue to be made using GDSs. The GDSs may themselves adopt features of NDC. NDC is an initiative driven by the business needs of Airlines and their partners. Where existing processes and structures serve those needs adequately they are likely to remain in place.

The expectation is that NDC will facilitate a richer landscape of service providers, but any new service providers are likely to work with and alongside the established service providers. The introduction of NDC based services will represent an evolution, with tomorrow’s situation being a hybrid of today’s service provision, service utilizing NDC and other services aimed to support both.

To ensure this evolution of services happens as smoothly as possible, IATA has established the Integration Group. This group, made up of industry experts from across the domains NDC affects and working outside of the NDC team & project, is tasked with the integration of NDC with existing standards (and by implication the systems that use those standards). The integration group will carry out the analysis and where necessary make recommendations to the appropriate standards setting bodies to ensure NDC works with and will continue to be supported by the long established process of Airline industry standard setting and revision.
4.1.2 Architectural Choice

The most fundamental choice this guide will discuss regarding NDC as a project is how the NDC solution will be integrated into the Airlines’ Passenger Service Systems (PSS). Broadly speaking there are three situations Airlines can be found in relating to their PSS:

- They host their own systems. Those systems may be developed in house or use licensed software
- Their suite of PSS is managed by a single outside organization. That organization will be responsible for managing hardware and software; a user group may influence the management of the software and hardware
- Their suite of PSS is managed by a number of outside organizations. Those organizations will be responsible for managing hardware and software; user groups may influence the management of the software and hardware

In all cases the fundamental IT architecture choice regarding NDC is the same; should NDC be integrated directly into the PSS itself or should the integration be facilitated using an integration layer inserted logically in front of the PSS with an adapter designed specifically for NDC.

4.1.2.1 Airline Reference Architecture

IATA developed the NDC Reference Architecture in order to highlight the critical components an Airline should consider for the successful deployment of NDC within its technical infrastructure.

The NDC Reference Architecture offers a framework for planning and deploying NDC projects. It will help Airlines drive decisions associated with their implementation of NDC. For instance, with an appropriate NDC reference architecture, Airlines will be able to:

- Manage the expansion of NDC within their organization from pilot to comprehensive deployment and adoption.
- Introduce architecture-centric methodology. NDC Reference architecture offers a few suggestions for getting the NDC initiative off to a fast start.

Overall, the aim is to provide a better understanding of what it will take to move NDC from a vision to delivering business value.
4.1.2.2 Architecture principles

The NDC Reference architecture aims at listing the components required to deploy NDC – it leverages existing building blocks and facilitates the deployment of new ones. This ‘adopt and extend’ philosophy recognizes the reality that IT is and will remain a heterogeneous environment. In other words, this guide accepts that Airlines have an existing IT landscape of heterogeneous systems. The goal of NDC is to enhance, rather than replace, this landscape.

With its modular approach, the NDC Reference Architecture offers Airlines a flexible and cost-effective solution. For example, if a technology supplier comes with a better Offer Management solution, the architecture allows that solution to be deployed quickly and economically (e.g. via reduced integration cost) and can easily be integrated with the other building blocks. This methodology gives Airlines access to best of breed solutions, can help reduce integration costs and shorten the time needed to deploy new solutions.

Additional points

The reference architecture proposed by IATA is inherently vendor neutral and not specific to a set of technologies. It accommodates the needs of Airlines of all sizes and can adapt to evolving needs and wants.

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**NDC Airline – Reference Architecture**

The chart above illustrates the operational systems required by the Airline to support NDC, and how they will interact with each other as well as with each of
its distribution channels. The NDC Reference Architecture requires the integration of new functional components:

**Offer Management:** this module will enable the Airline to respond to the shopping requests sent by agents, construct, store and manage product Offers to agents and reinforce its merchandizing capability with them.

**Order Management:** this module will enable the Airline to create, store and manage Orders from Sellers originating from product Offers.

**Rich Media:** this module will enable the Airline to create, manage and distribute rich media content (images, videos etc.) to Sellers.

**Airline Profile:** this module will enable the Airline to create, manage and distribute the rules to determine which shopping requests should be sent to the Airline.

### 4.1.2.3 New elements introduces with NDC Architecture

The NDC Reference Architecture introduces two new modules specific to NDC: Offer Management and Order Management.

**Offer Management:** This module supports rules and processes for price engine, merchandising, personalization, consistency check and a repository for Offers.

**Order Management:** This module supports rules and processes for booking, payment, ticketing, and servicing as well as a repository for Orders.

Therefore the NDC Reference Architecture requires IT to integrate the Offer and Order Management with the existing Airline IT solutions. That existing architecture, centered on the PSS, will broadly fall into one of three situations.

- **Airlines will host their own systems.** Those systems may be developed in house or use licensed software.
- **The Airline’s suite of PSS is managed by a single outside organization.** That organization will be responsible for managing hardware and software; a user group may influence the management of the software and hardware.
- **Their suite of PSS is managed by a number of outside organizations.** Those organizations will be responsible for managing hardware and software; user groups may influence the management of the software and hardware.

The key IT architecture choice regarding NDC is the same for all above cases; should NDC be integrated directly into the PSS itself or should the integration be facilitated using an integration layer inserted logically in front of the PSS with an adapter designed specifically for NDC?
The considerations that would need to be taken into account if NDC based services are to be integrated directly into a PSS will very much depend on the specifics of that PSS, and therefore will be beyond the scope of this guide. By contrast if an Airline chooses to integrate NDC based services using an integration layer, there is general guidance that can be shared that will support more informed decision making.

### 4.1.2.4 Future development of the NDC Reference Architecture

The NDC Reference Architecture will continue to be refined. Lessons learned from pilots and early deployments will diffuse into this implementation guide in general and the reference architecture in particular.

A specific area where the architecture will develop is trust management. It is our intention not only to focus on the recommended mechanism(s), but also to touch on performance/scalability and security/identity management in detail.

### 4.2 Technical considerations

This guide is also intended as a resource to best practices and usage recommendations to ensure consistency across NDC implementations.

The following section addresses many of the common features pertaining to XML schemas (Name Space, Augmentation points, Metadata...), also illustrates the specific functional use of the schemas and how the elements and data contained, can transition between flows (i.e. between shopping and Order creation).

The NDC Standard and specification will continue to evolve and mature, therefore this document will be modified appropriately to keep pace with the industry.

### 4.2.1 NDC Schema Design Considerations

The following points outline PADIS recommendations related to the design and architecture of NDC schemas. These are listed for information purposes. Certain points have been reassessed and discarded, following a closer look at how best practices are evolving in the IT industry, while others have no direct impact on the physical implementation of NDC XML messages. Nevertheless, these points illustrate some of the considerations that were factored into the latest versions of the NDC schemas.

The numbering and wording of each recommendation’s description remain unaltered, as sourced from the official PADIS meeting minutes.
12. Rule: 10 – Namespaces

10.1 There will be one namespace per Message Schema (NS + TargetNS) and it shall be the default.
10.2 Object library schemas will follow Chameleon approach and therefore not have a Target Namespace.
10.3 Object library schemas will have one namespace.
10.4 The elementFormDefault shall be qualified
10.5 The attributeFormDefault shall be unqualified

Agreement to adopt chameleon approach. NDC will also keep using a common namespace across all schemas.

7. Rule: 7.2 – “Type” vs “Ref”

Define XML schema elements via the ‘type’ attribute or an inline type definition (‘simpleType’ or ‘complexType’) instead of the ‘ref’ attribute that references a global element.

Agreed to retain current combination of typed versus referenced instantiations, as changes to schemas focused on higher priority items impacting actual message structure, rather opposed to internal syntax and architecture. Casting elements as types Offers the flexibility of assigning a name to said elements that differ from the inherited complex type, while using references rigidifies the schema by forcing consistent naming of elements, as these cannot be changed. The NDC schemas use a balanced amount of both styles within its common types as well as message structures.

6. Rule: 7.1 – Venetian Blinds

Define all type declarations (complex, simple) globally and all elements locally (Venetian Blinds).

No action required – known and agreed exception, as it is related to recommendation # 7 on types and refs.

PADIS Extra – Metadata

Use of metadata, specifically in case of currency handling.

Usage instructions of metadata will be clarified by the implementation guide. This will include default behaviors with and without metadata, as well as how the metadata is associated with specific elements within the message.

10. Rule 7.11 – Wildcards
Avoid Wildcards in Reference Schemas. Wildcards in IATA schemas work in opposition to standardization. The goal of creating harmonized, standard schemas is to standardize definitions of data. The use of wildcard mechanisms outside of valid augmentation points (such as xsd:any), which allows insertion of an arbitrary number of elements from any namespace) allows nonstandard data to be passed via otherwise standardized exchanges. Avoidance of wildcards in the standard schemas encourages the separation of standardized and non-standardized data.

**Agreement to keep xsd:any extensions purely within augmentation points. Best Practices document already reflects usage of this, as compared to similar TPF extensions. Usage instructions of augmentation points will be included in the NDC implementation guide.**

### 4.2.2 NDC Augmentation Points

NDC schema will primarily be used as a payload mechanism for web services and accordingly, it may be anticipated that there will be additional information required for NDC transaction processing that has not yet been defined in the schema.

Additionally, as the NDC specification matures, it is likely that new data exchange requirements will be identified that are necessary for integration with other Airline distribution & merchandising systems.

To accommodate this scenario, the NDC schemas include support for the specification of implementer-proprietary data structures from non NDC namespaces that are wrapped in NDC conformant types so they may be used in an NDC schema. The main construct available since NDC 1.1.3 candidate release for wrapping non-NDC-conforming types is an Augmentation point (global element reference) which is represented as the AugmentationType in the NDC structures schema.

The augmentation point adapter type is an NDC-conformant type that can contains:

- Attributes from external namespaces
- Elements from external namespaces

Augmentations are not considered to be a part of the NDC standard functionality and therefore may be ignored if not recognized/understood/implemented by consuming systems. In most cases, the usage and exact specifications of such augmentation points would need to be agreed upon bilaterally amongst integrated parties.

Augmentation points may reference content from more than one external namespace, but all content must be from external namespaces.
Valid business requirements should be covered by amendments to the industry standard. NDC, however, is a new concept and its specifications gradually evolving. Hence it is highly possible that new requirements may be identified during the implementations, and implementers will be constrained by the standards release lifecycle, which will, in turn, slow down the adoption. The augmentation point structure is provided to support these types of scenarios and provide implementers with an interim solution so as to avoid hindering the pace of adoption. At the same time Augmentation points usage is highly discouraged on a longer terms basis - it is not aligned with the overall standardization efforts, and creates grounds for multiple bilateral variations of the implementations. It is expected that implementers will produce corresponding change requests to the industry standard to include required functionality, managed through Augmentations in the interim, for the next available release cycle. The objective is to enhance the standard for the benefit of the industry and to avoid the multiplication of its bilateral variations.

More detailed Augmentation points considerations and usage will be described in the next revisions of the NDC Implementation Guide.

4.2.3 OfferID and OrderIDs

The following topic illustrates specific functional use of the schemas, how OfferID and OrderIDs transition between the stages of a transaction lifecycle (i.e. between shopping and Order creation).

Example1:
Here is a sample from a shopping response which shows how Offer IDs are used to track individual priced Offers. Once the ORA responds to the Seller / Aggregator with an AirShoppingRS, the message includes but is not limited to: The ORA’s Offer-ID, The ORA’s Shopping ResponseID, The ORA’s OfferItemID and All ServiceIDs.
Once the ORA receives a request for Order creation in the form of an OrderCreateRQ message, the message includes the Shopping Response ID, the OfferID and the OfferItemID from the previous shopping transaction.
*The mechanism by which Offers are being tracked and assigned to a particular Offer are not in scope of the NDC Standards.

**Example 2:**
This XML sample illustrates how an Order ID is being returned in the OrderViewRS once an Airline has generated a “Master Order” in its own Order Management System. The OrderViewRS message includes but is not limited to: The ORA’s OrderID, the ORA’s OrderItemID, and All ServiceIDs.

**Example 3:**
This sample illustrates how an Order can be retrieved by its OrderID using the OrderRetrieve message.
4.2.4 Generic Message Exchange Patterns used in NDC

4.2.4.1 Concepts of sessions and state as applied to NDC

NDC messages are inherently stateless, as is their underlying HTTP transfer mechanism. Before developing an application that is to work with the NDC processes, developers should have a clear understanding of networking concepts.

A stateless protocol is a communication protocol that treats each request as a new request. The communication consists of independent pairs of request and response. Stateless transactions do not get executed in session. This concept differs from legacy systems requiring a stateful transaction flow of multiple internal messages within the same context, for example interactive sell followed by a wrap-up.

The simpler memory management and reduced system management overhead are advantages of stateless protocols.

4.2.4.2 NDC Message Exchange Patterns

A direct consequence of NDC being a stateless protocol lies in message exchange patterns that are supported by NDC. These are explained below.

Request-Reply

The Request-Reply pattern is the most common of the message exchange patterns used in NDC, which consists of a single exchange of two messages where a client sends a message to a service and expects a response back. In the normal course of events the client will stop processing until a response is returned from the service. As long as the response conforms to the protocol's format for a response to the original request it will be a valid response. Such a response could contain
information indicating a successful message exchange. But the response could also indicate an error on the service or a void message. If the service cannot or does not reply within a predetermined interval, there will be a time out exception and the message exchange will be terminated unilaterally.

**Request-Reply message pattern**

An example of the request-reply pattern would be a Seller (the service consumer) requesting an Offer from an Airline, and the Airline (the service producer) replying to the request with an Offer.

**One-way or notify message**

The second message exchange pattern used in NDC is the one-way or notify message exchange pattern which is a unilateral transmission of information, in the message, without a preceding request. This type of message is sometimes known as a push message. The pattern may consist of a single exchange of one or two messages. The recipient may, possibly after processing the message's content, send a response back to the sender of the notify message, without additional content, acknowledging receipt of the notify message.

**Notify message pattern**

An example of the notify message exchange pattern with acknowledgment would be, where an Airline (the source) sends details of an Airline profile to an Aggregator,
and the Aggregator (the destination) acknowledges receipt of details of the Airline profile.

**Request-Response with Multi-Message Orchestration**

Finally the Request-Response with Multi-Message Orchestration message exchange pattern uses the request/response exchange pattern but introduces multi-message orchestration for processing conditions that require additional information to complete the originating transaction. This message exchange pattern is part of an Event Triggered Exchange (multi-process) NDC information flow. It is worth noting that in this pattern any number of message exchanges, each with two messages, could occur before a response is sent to the first request.

An example of Request-Response with Multi-Message Orchestration would be, where a Seller (the service consumer) requests an Order be created (request A in the diagram above), the Airline (the service producer) requests (request B in the diagram) that the Seller sends payment details. The Seller responds to the request for payment details (response B) and the Airline, after validating the payment details returned by the Seller, responds to the Seller’s Order create response with the details of the Order that has been created (response A).

In the event you wish to learn about the technical aspects of NDC, a dedicated [training course](#) is available for IT professionals.
4.3 Considering NDC as a project (Airline perspective)

**IATA** developed a NDC Project Management **roadmap** for the initial deployment of NDC within your organization.

The NDC Project Management roadmap is based on the following six steps:

- **Scope**: your Airline assesses the extent to which NDC will support your distribution strategy.

- **Simulate**: your Airline establishes its business case for NDC, working with representatives from the relevant departments, and using the NDC Financial Simulator.

- **Solutions**: your Airline assigns the IT department to work closely with the Business Development department in identifying the most appropriate technology solutions and vendors.

- **Select**: your Airline reviews the responses to the Requests-For-Proposal it will have issued and select the proposal that best fits your Airline’s requirements.

- **Set up**: together with the chosen vendor, your Airline begins the implementation of the project, as defined in the business case.

- **Scrutiny**: at this stage, your Airline starts monitoring and analyzing the actual results of the deployment of NDC within your organization versus the initial business case.
It will be for the sponsor and stakeholders of each project to validate the overall benefits before starting out; this guide will offer only general guidance on how those benefits could be measured.

4.3.1 Assessing the Costs

IATA developed the NDC Financial Simulator. The goal of the Financial Simulator is to provide Airlines with a simple tool to simulate a high-level business case for deploying NDC-related capabilities, and to:

- Articulate how NDC could enable part of an Airline’s commercial strategy
- Quantify potential revenue uplifts & associated costs

The Financial Simulator is available to any Airline wishing to understand at a very high level how an NDC deployment could impact them financially. The tool is available upon request to the IATA NDC team.

In the event you wish to learn about the financial aspects of NDC, a dedicated training course is available for finance professionals.

Please contact your Regional NDC Manager for more information.
4.3.2 Education

IATA produced a series of NDC Educational Videos to introduce NDC and learn about the possible patterns available for the deployment of NDC.
5 Appendices

5.1 Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountable Document</td>
<td>Validated official document (such as any type of an Airline ticket, or a Standard Traffic Document –STD - or payment voucher) that has a value and must be accounted for.</td>
</tr>
<tr>
<td>Acknowledgment</td>
<td>Acknowledges the receipt of a message but does not imply acceptance of the message content.</td>
</tr>
<tr>
<td>Affinity Shopping</td>
<td>A wide search defining a range of criteria such as specific interest, destination attributes, defined budget, date ranges or destination ranges.</td>
</tr>
<tr>
<td>Aggregation</td>
<td>The business function of distributing a Seller’s shopping request to multiple Airlines and aggregating subsequent responses.</td>
</tr>
<tr>
<td>Aggregator</td>
<td>An entity who distributes a Seller’s shopping request to multiple Airlines and aggregates subsequent responses.</td>
</tr>
<tr>
<td>Airline</td>
<td>Supplies product Offers in response to receiving a request.</td>
</tr>
<tr>
<td>Ancillary Services</td>
<td>Ancillary Services are defined in PSC Resolution 787 as anything outside of product attributes (optional or discounted). Ancillary Services may be bundled in the product Offer, or Offered as additional, a la carte services.</td>
</tr>
<tr>
<td>Anonymous Shopping</td>
<td>A shopping request sent to Airlines without Traveler personal data. The Airline receiving the shopping request will not be able to identify the candidate traveler, or on whose behalf the request is being made. The request will still carry Seller/Aggregator information.</td>
</tr>
<tr>
<td>API</td>
<td>Application Programming Interface</td>
</tr>
<tr>
<td>Attribute Shopping</td>
<td>A search specifying one or more attributes to get more focused results (e.g. equipment types, seat types and characteristics, baggage allowance, meals, etc.).</td>
</tr>
<tr>
<td>Authentication</td>
<td>The process by which a system identifies an individual or a business entity to make sure that the user or the business entity is who they claim to be, based on attributes that are sent in a message.</td>
</tr>
<tr>
<td><strong>New Distribution Capability (NDC)</strong></td>
<td><strong>Implementation Guide</strong></td>
</tr>
<tr>
<td>--------------------------------------</td>
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</tr>
<tr>
<td><strong>December 2015</strong></td>
<td></td>
</tr>
</tbody>
</table>

<p>| <strong>Baggage Determining Carrier</strong>       | The carrier whose baggage allowances and charges apply within an interline itinerary. |
| <strong>Bilateral Interface Agreement</strong>     | The documented agreement made between the sender and receiver as the basis of the data exchange between systems. This agreement defines a number of features, which are mandatory or optional within the specification (time outs, message Order processing, reject processing). |
| <strong>Bilateral Time Limit</strong>              | A generic structure for time limits that is subject to bilateral agreements between parties. |
| <strong>Consent</strong>                           | Any freely given, specific and informed indication of his wishes by which the Data Subject signifies his agreement to Personal Data relating to him is being processed. It should be fully understandable to the Data Subject what will happen if he consents to the Processing of his Personal Data. |
| <strong>Data Controller</strong>                   | The natural or legal person, or any other body, which alone or jointly with others determines the purposes and means of the processing of Personal Data. |
| <strong>Data Processor</strong>                    | The natural or legal person, or any other body, which processes Personal Data on behalf of the Data Controller. |
| <strong>Data Protection Authority</strong>         | The local public authority made responsible for monitoring the application, within its territory, of the applicable data protection legislation. |
| <strong>Data Transfer</strong>                     | Disclosure of data by transmission, dissemination or otherwise of making the Personal Data available. Transfers can take the form of systematic data sharing where the same data sets are shared between the same organizations for an established purpose. |
| <strong>Deposit Time Limit</strong>                | Time by which a deposit must be paid based on the conditions of an Order. |
| <strong>Frequent Traveler</strong>                 | A member of an Airline’s loyalty program, where the traveler has a uniquely identifiable reference and this reference can be verified by an Airline. Following verification, the traveler becomes a Recognized Traveler. |
| <strong>Group Order</strong>                       | An Order applicable to one or more travelers, where all traveler names have not yet been specified. |
| <strong>Inventory Guarantee Identifier</strong> | A unique identifier issued by an Airline to reference that inventory for a specified Offer will be guaranteed for a period of time. |
| <strong>Inventory Guarantee Time Limit</strong> | The time that inventory for a specified product Offer is guaranteed. The inventory held must be converted into a completed Order before the time limit expires otherwise the guarantee may be lost. Held Inventory is referenced by an Inventory Guarantee Identifier. |
| <strong>Joint Data Controllers</strong> | Data Controllers which jointly determine (in some cases, to a different extent) the purpose and means of one or several Processing operation(s). |
| <strong>Marketing Carrier</strong> | The carrier that sells with its own code (as part of a code share agreement) on a flight that is actually operated by another carrier (the Operating Carrier). |
| <strong>Master Order</strong> | The ORA owns the Order within NDC, and the term Master Order is used to distinguish this from a record that may be held by a POA, or a Seller, which may be stored within their own Order Management System. |
| <strong>Meta Search deep link</strong> | A link to an Airline’s or OTA’s itinerary purchase page enabling the user to purchase a specific Offer. |
| <strong>Meta Search shallow link</strong> | A link to an Airline’s or OTA’s shopping results page listing multiple flight options for a pre-specified city pair and dates, as well as upsell /cross-sell products as applicable. |
| <strong>Naming Time Limit</strong> | Time by which traveler names must be provided against a Group Order. |
| <strong>Offer ID</strong> | Offer ID facilitates the tracking and verification of individually priced Offer(s) selected from the shopping response. An Offer ID is unique to each individually priced Offer in the shopping response even if the Offer price is zero. An OfferID may be specific to individual passengers in the Offer, and may be associated with a segment or a journey. The set of Offer IDs returned in a response is referenced by a Shopping Response ID. |
| <strong>Offer Item</strong> | A group of one or more Services within an Offer, and has a total price. |</p>
<table>
<thead>
<tr>
<th><strong>Offer Responsible Airline (ORA)</strong></th>
<th>The Airline responsible for returning a combined Offer, which may include services from other Airlines (Participating Offer Airlines), to the requesting entity. The ORA subsequently performs Order Management functions against this Offer.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Offer Time Limit</strong></td>
<td>The time within which Offers must be converted into completed Orders. On expiry a new shopping transaction may be required. Offer Time Limit is mandatory.</td>
</tr>
<tr>
<td><strong>Operational Window</strong></td>
<td>The period during which a flight is under the control of the operation. The time at which the flight enters the operational window varies between carriers and there is not one sole definition within industry standards today.</td>
</tr>
<tr>
<td><strong>Operating Carrier</strong></td>
<td>The carrier that holds the Air Operator's Certificate for the aircraft used for that flight.</td>
</tr>
<tr>
<td><strong>Order</strong></td>
<td>An Order is a uniquely identified record of the agreement of one party with another to receive products and services under specified terms and conditions. ‘Order’ supports the sale of a flexible range of Airline products and services that are not necessarily journey. An Order will contain one or more Order Items each with an identifier that is unique within an Airline’s Order Management System. An Order may support non-homogeneity, i.e. each passenger in an Order may hold different sets of Order Items at different prices.</td>
</tr>
<tr>
<td><strong>Order Item</strong></td>
<td>A selected Offer Item now confirmed within an Order.</td>
</tr>
<tr>
<td><strong>Order Management</strong></td>
<td>The key features of Order Management include the creation/booking and servicing of Orders.</td>
</tr>
<tr>
<td><strong>OTA</strong></td>
<td>Online Travel Agency</td>
</tr>
<tr>
<td><strong>Payment Time Limit</strong></td>
<td>The deadline by which a commitment to pay must be made for the items in the Order. Payment Time Limit is mandatory.</td>
</tr>
<tr>
<td><strong>Personal Data</strong></td>
<td>Any information relating to an identified or identifiable natural person (&quot;Data Subject&quot;); an identifiable person is one who can be identified, directly or indirectly, in particular by reference to an identification number or to one or more factors specific to his physical, physiological, mental, economic, cultural or social identity.</td>
</tr>
<tr>
<td><strong>Personalized Shopping</strong></td>
<td>Traveler consents to include personal data in the shopping request and this information is included as data within the response itself.</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Participating Offer Airline (POA)</strong></td>
<td>An Airline (that may be the marketing or operating if applicable) other than the Offer Responsible Airline involved in an Offer or subsequent Order.</td>
</tr>
<tr>
<td><strong>Planning Window</strong></td>
<td>The period during which a flight is under the control of the business. The length of the planning window varies between carriers and there is not one sole definition within industry standards today.</td>
</tr>
<tr>
<td><strong>Price Guarantee Time Limit</strong></td>
<td>Period for which an Offer price is guaranteed. On expiry an Offer may be re-priced up to the point an accountable document is issued. A price guarantee cannot extend beyond the Offer Time Limit unless the Order has been created.</td>
</tr>
<tr>
<td><strong>Processing of Personal Data</strong></td>
<td>Any operation or set of operations which is performed upon Personal Data, such as collection, recording, organization, storage, adaptation, or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, blocking, erasure or destruction.</td>
</tr>
<tr>
<td><strong>Product Bundle</strong></td>
<td>Where several services are offered for sale as one product.</td>
</tr>
<tr>
<td><strong>Recognized Traveler</strong></td>
<td>Signifies an authenticated traveler in a personalized shopping context (where a traveler consents to share personal data in the shopping request) vs. an anonymous traveler, in an anonymous shopping request context (where no traveler data was obtained and/or provided).</td>
</tr>
<tr>
<td><strong>Seller</strong></td>
<td>Creates shopping requests to Airlines on behalf of a customer and displays the subsequent responses for review.</td>
</tr>
<tr>
<td><strong>Sensitive Data</strong></td>
<td>Personal Data labeled as Sensitive Data under applicable national laws.</td>
</tr>
<tr>
<td><strong>Service</strong></td>
<td>A Service is a product or a service that can be separately delivered and uniquely described by an Airline. It is referenced by an ID that is unique within an Airline. A Service may be sold separately in a single Offer/Order Item or sold bundled with other services in a single Offer Item/Order Item.</td>
</tr>
</tbody>
</table>
Shopping
A process whereby a Seller is able to request Offers from an Airline (for flights and ancillaries) based on its desired search criteria and receive Offers corresponding to its request. There are various types of shopping including, Personalized/Anonymous and Attribute/Affinity Shopping.

Shopping Basket
A shopping basket is e-commerce software that allows visitors to an internet site to select and store items for eventual purchase.

Shopping Response ID
Shopping Response ID facilitates the tracking of what was Offered and is an identifier unique to the source Airline for a set of product Offers returned in response to a shopping request.

TMC
Travel Management Company

XML
eXtensible Markup Language. A standard document format conceived to store and transport data of potentially complex structures, typically over modern web-based integration methods. XML supports international character sets and is both human-readable and machine-readable.
Annex 1 (Supplementary)

Guidelines for the protection of Personal Data

Scope of these guidelines

Just as is the case with existing distribution processes, distribution based on NDC, or any other means of personalization or shopping with enhanced content, must be compliant with privacy regulation. The present Guidelines are aimed at all parties in the distribution chain that decide to implement NDC for receiving or transmitting shopping requests and for responding to shopping requests. It is critical to note that these recommendations are not unique to NDC. The following guidelines would apply to any parties providing personalization in travel retailing, or facilitating shopping for enhanced content based on personal information provided by the shopper. These guidelines are provided to assist all parties engaging in the processing, including transmission, of passenger data using the NDC standards to comply with basic privacy law requirements. However, these guidelines are based on the European Commission’s Privacy Protection Directive 95/46/EC as of 2014. Applicable local laws vary in different jurisdictions around the globe, and may even vary within the European Union. These guidelines are to provide a general understanding of the potential regulatory requirements and should not be understood as legal advice. Any party processing passenger data is advised to consult their own legal counsel for more precise guidance.

The general concepts of privacy protection are:

Personal Data can only be collected and processed lawfully, under strict conditions and for a legitimate purpose.

Personal Data must be processed in a way that is fair and transparent, in line with good data quality and proportionality standards, in line with adequate security standards and taking into account the rights and expectations of Data Subjects.

Special care must be dedicated to:

- Requirements of notifications or authorizations;
- Restrictions on data transfers;
- Restrictions on the Processing of Personal Data for profiling or direct marketing;
- Restrictions on the Processing of Sensitive Data;
- The need to have adequate contractual arrangements and policies in place.
The definitions of the data protection concepts as they are being used in the present Guidelines are included in the glossary.

The Guidelines will help Airlines to identify the issues to be considered when implementing NDC, at the time of the design of related software applications and at the time of the Processing itself. Each Airline in all circumstances must comply with applicable local laws and regulations. EU data protection legislation is evolving. Changing requirements will need to be taken into consideration. Nothing in these Guidelines shall be construed as limiting Airlines from applying more stringent or additional measures or derogations as under applicable local laws. The Guidelines are IATA's interpretation on good practices when implementing NDC; they aim at reflecting general EU rules applying to the Processing of Personal Data, and add some good practice advice for the information of Airlines intending to implement NDC. It is the Data Controller's duty, and where applicable the Data Processor's duty, however, to ensure compliance with any applicable laws which would place additional or other obligations on them.

Before implementing NDC, it may be necessary for Data Controllers and/or Data Processors to effectuate privacy impact assessments, depending on the intended use, on the exact intended service Offering or service orientation. Data protection requirements should be considered at the occasion of the preparation or implementation of business cases and when establishing contractual arrangements with service or product providers and other parties involved in the distribution chain.

The scope of these Guidelines is limited to the shopping process based on NDC: Processing of Personal Data at the occasion of shopping requests and the product Offer responses returned from the Airlines. Any additional or other use of NDC involving a Processing of Personal Data will equally have to be compliant with any applicable data protection rules and regulations.

Introduction to Privacy Protection Guidelines

The Guidelines will help parties to identify the issues to be considered when implementing NDC, at the time of the design of related software applications and at the time of the Processing itself. Each party in all circumstances must comply with applicable local laws and regulations. Global data protection legislation is evolving. Changing requirements will need to be taken into consideration. Nothing in these Guidelines shall be construed as limiting parties from applying more stringent or additional measures or derogations as under applicable local laws. The Guidelines are provided to ensure parties are sensitive to privacy concerns. They aim at reflecting general EU rules applying to the Processing of Personal Data, and add some good practice advice for the information of Airlines intending to implement NDC. It is the Data Controller's duty, and where applicable the Data Processor's
duty, however, to ensure compliance with any applicable laws which would place additional or other obligations on them.

Because NDC enables material changes in the scope of data exchanged during the shopping process, and the roles of parties during that process, these Guidelines focus on the shopping process based on NDC: Processing of Personal Data related to shopping requests and the product Offer responses returned from the Airlines. Any additional or other use of NDC involving a Processing of Personal Data during fulfilment or other processes will equally have to be compliant with any applicable data protection rules and regulations.

The NDC User's Responsibility in the Processing of Personal Data

Before Processing Personal Data on the basis of NDC, parties should assess which level of responsibility they have in the Processing: Data Controller or Data Processor, and which obligations and requirements are attached to such responsibility as under applicable local laws. Under the European system, a Data Controller bears the full responsibility for compliance with data protection laws, including compliance by others performing data processing on its behalf.

Accordingly, parties should verify whether all contractual safeguards and arrangements with involved third parties are in place where such contractual safeguards are obligatory under applicable laws. Implementation of NDC may require amendments to existing agreements between Data Controllers and Data Processors, between Data Controllers, or to other contractual arrangements or policies such as privacy policies. Any such amendments may require notification to or authorization by Data Protection Authorities under applicable local laws. Depending on the intended use of Personal Data, the intended services or intended purposes of processing, Data Controllers may need to notify local Data Protection Authorities or, where applicable, request authorization from such Data Protection Authorities.

Possibility of Anonymous Shopping

When implementing NDC, parties should ensure that candidate travelers at all times maintain the possibility for anonymous shopping. Where necessary, adequate contractual arrangements should be put in place with the parties involved in the distributions chain, and with service or product providers.

Where the Airlines receive the shopping request anonymously and thus cannot identify the traveler or the candidate traveler when making and returning the Offers, taking into account the means likely to be used for identification, the Airlines will not have to take into account data protection requirements as referred to in the present Guidelines during this shopping process. Data protection requirements
will then apply as from the moment that the traveler Orders its travel and hence becomes an identified traveler: reference is made to IATA Recommended Practice 1174.

Where it is possible for a website, such as a travel agent's website, to identify the traveler or the candidate traveler making a shopping request, before the shopping request is sent anonymously to the Airlines, and where the travel agent processes such traveler’s or candidate traveler’s Personal Data, data protection legislation will apply to such processing by the travel agent as under presently applicable shopping processes.

**Privacy by Design and Privacy by Default**

Software developers and system providers are encouraged to use privacy by design techniques when developing data processing solutions based on the NDC standards. The standards were designed to facilitate this by ensuring that each data element defined in the standards could be individually managed by applicable software. This would allow for encryption, tokenization or segregation of only sensitive data elements rather than entire records. Fields have also been defined to allow indication of consumer consent to be attached to data.

Data Controllers, and where applicable also Data Processors, should use software applications which include the necessary tools for protecting the privacy of Data Subjects, including as the case may be privacy-friendly default settings.

Implementation of NDC should take place with privacy built in at the start, not just in terms of security measures, but also in terms of minimizing the amount of Personal Data processed.

**Legitimacy of the Processing of Personal Data**

Before starting any Personal Data Processing on the basis of NDC, parties should check whether there is an appropriate legal basis to do so. Where possible it is always preferable to obtain the Data Subject's Consent. Processing without the Data Subject's Consent may be legitimate, such as in cases where the Data Controller can show a legitimate interest for processing the Personal Data according to the interpretation given thereto under applicable local laws, or where applicable laws consider that the processing is necessary to take steps at the Data Subject's request prior to entering into the transportation contract. It shall be the Data Controller’s responsibility to ensure that the Processing of the Personal Data is legitimate as under applicable local rules.
For Processing of Sensitive Data, the Data Subject should be asked for prior explicit Consent where this is required under applicable laws, and in the form provided for under such laws.

**Information Requirements**

Travelers and candidate travelers, prior to making the shopping request, should receive all required information on the Processing of their Personal Data, as required under the applicable local laws. It should remain possible when implementing NDC, to provide notice, with adequate and clear information, to travelers and candidate travelers for any shopping request, such as with links to clear data protection policies. Where a shopping request is introduced by or via a travel agent or other intermediary, means should be in place to guarantee that no Personal Data of the traveler or candidate traveler are introduced by the travel agent or other intermediary and passed to others in the distribution channel without the traveler or candidate traveler having been informed according to applicable laws, and without having obtained appropriate Consent where required. Before the shopping request is entered, the traveler or candidate traveler should know that he has the possibility to make a shopping request anonymously (anonymous shopping); how he can make such anonymous Shopping Request; what exactly the different advantages and consequences are of anonymous shopping in comparison to a shopping request for personalized Offers, what exactly the purpose is of the Processing of Personal Data, and of data elements, in relation to the shopping request; if the Personal Data are processed for other purposes, the exact nature of any such other purposes; who the Data Controllers are for each stage of any processing and by whom they are represented; to which parties the Personal Data are sent in case of request for personalized Offers and for which purposes exactly; in some countries it may suffice to explain that the request is sent to "all relevant Airlines" for the purpose of receiving the requested personalized Offers, other national legislations may require to be more specific. Under some local laws, where explicit Consent is required, it may be necessary that the Airline(s) to whom the shopping request is passed are identified prior to passing the Shopping Request to them. Parties will need to verify and take into account any such national specific requirements; if questions are asked on behalf of the Airlines, before the Shopping Request is introduced, whether replies to the questions are obligatory to receive the specific Offers requested or not, as well as the possible consequences of failure to provide detailed information in the reply. Where applicable, the existence of a right of access for the Data Subject to his Personal Data and a right to rectify Personal Data, as under applicable local laws; Other information, according to the circumstances, is necessary for the Processing to be fair.
Parties should have the necessary contractual arrangements in place with the others in the distribution chain through whom the shopping data may be processed.

**Obtaining Consent**

When implementing NDC, the adequate tools should be put in place for obtaining the Data Subject's Consent where required - including explicit Consent where required - before the Personal Data are passed to others that will process the data. Local rules may allow or encourage the use of opt-in boxes as a tool for obtaining Consent: boxes where a traveler or candidate traveler when making the shopping request indicates by a tick his agreement to his Personal Data being passed to Airline(s) for receiving personalized Offers. Other means for obtaining Consent may be implemented, taking into account local rules and practices.

Where applicable, parties implementing NDC shall have all necessary contractual arrangements in place with others in the distribution chain that process data to have such adequate tools applied.

It should be possible to keep records of what each Data Subject exactly consented to: in particular the date of Consent, how Consent was obtained, the scope of Consent, and exactly which information was provided to the Data Subject for obtaining his Consent.

**Restrictions on Profiling and Direct Marketing**

Users of NDC may intend to use the information received at the occasion of the shopping requests (specific choices and habits) to create customer profiles in order to provide travelers on a systematic basis with product Offers tailored to match their inferred interests.

Specific information duties and requirements for Consent will then have to be complied with as under applicable national rules.

Many countries have anti-spam laws (privacy and electronic communications regulations) in addition to general data protection and privacy rules, preventing organizations from sending unsolicited e-advertising if the conditions there to are not fulfilled.

For any such use of the Personal Data involved with the shopping requests, the conditions of such legislation will have to be complied with. Additional tools such as specific opt-in boxes and opt-out facilities may need to be implemented.

Data Subjects should have the possibility to object, on request and, according to applicable local laws, free of charge, to the Processing of their Personal Data for
the purposes of direct marketing. Opt-in and opt-out facilities should be provided for as under applicable local laws.

Any traveler has the right not to be subject to a decision which produces legal effects concerning him or significantly affects him and which is based solely on automated Processing of Personal Data intended to evaluate certain personal aspects relating to him, such as creditworthiness, conduct, etc. Local laws provide for conditions under which any such decisions are allowed. Parties using tools with automated decision-making for Offers should ensure compliance with applicable local laws.

**Restrictions on the Processing of Sensitive Data**

Parties should ensure that when they return Offers based on shopping requests that contain Sensitive Data, the Data Subject's Consent for this Processing was obtained, as required under applicable laws, including explicit Consent where this is required, and in situations or countries where the prohibition to process Sensitive Data may not be lifted with Consent, they should ensure that any applicable other requirements are complied with. The circumstances and legality of Processing of Sensitive Data must be assessed carefully and can be subject to specific local restrictions.

In some countries specific restrictions may apply to Personal Data that are not labelled as Sensitive Data by virtue of law but are considered as semi-sensitive or privacy intrusive. Where the Personal Data e.g. concern children, a proof of parental Consent may be necessary for the Processing. For shopping requests related to minors, specific tools or measures may need to be implemented, in conformity with applicable laws, to ensure parental Consent.

Parties implementing NDC should put all necessary contractual arrangements in place in relation to any such requirements.

**Transborder Nature of the Transfers of Shopping Requests**

Parties implementing NDC with the view of sharing Personal Data from shopping requests with other group entities abroad, with Airlines, or with other third parties, should take into account the EU data protection requirements regarding transfers of Personal Data to countries outside of the EEA.

Account should be taken of two main situations:

(1) If the recipient country is considered to be providing an adequate level of protection, the Personal Data can be transferred to such country without specific measures related to such Data Transfer: this applies to the list of third countries
which were recognized as such by the European Commission, and to US entities which are Safe Harbor certified.

(2) If the recipient country is not considered to be providing an adequate level of protection, the Data Transfer is only allowed under specific conditions providing adequate contractual safeguards, such as with the use of contract following the model issued by the European Commission (Standard Contractual Clauses), or on the basis of certain exceptions to this requirement. Some exceptions that might apply are; with the Data Subjects' Consent, where the Data Transfer is necessary for the performance of a contract between the Data Subject and the Data Controller, or for steps necessary before a purchase can be made, such as processing a shopping request. Before relying on such conditions, Airlines should verify how these are applied and interpreted under applicable local laws.

Data Subjects must be informed of the transfer of their Personal Data from the EEA to countries outside the EEA, in accordance with local laws. Local laws may impose that the traveler or candidate traveler, before such transfer, has been informed of the names of the recipients of the Personal Data and of the countries where the Personal Data are received by such recipients as well as of the exact purpose of the transfer to such recipients. Under some local laws it may be necessary to ensure that the Data Subject is informed of safeguards for adequate protection being put in place.

Quality of the Personal Data

Parties implementing NDC, where they are Data Controllers, should see to it that all Personal Data obtained through Subject Requests are:

- Processed fairly and lawfully, in accordance with the purpose that was specified to the Data Subject;
- Adequate, relevant and not excessive in relation to the purposes for which the Airline is processing them;
- Accurate and, when necessary, brought up to date;
- Kept in a form which permits identification of the Data Subject for no longer than is necessary for the purposes for which the Personal Data were collected or are further processed.

Purpose Limitation

Where a traveler or candidate traveler has been informed of, or has given Consent to, the processing of his Personal Data for the specific purpose of receiving tailored Offers, such Personal Data should not be used for other purposes.
Where the specified purpose of the Processing of the Personal Data is for replying to one specific shopping request only, same Personal Data should not be kept for replying to other shopping request and should not be retained for direct marketing or any other purposes without additional consent for these uses. Parties should ensure that use of the Personal Data for any such other purposes is in compliance with all local laws relating to purpose specification and information to the Data Subject and any requirements relating to Consent.

**Data Proportionality and Data Minimization**

The Personal Data obtained from shopping requests should not be shared with third parties that are not relevant for the purpose of the shopping request without the Data Subject's Consent or other legitimate reason. Collected Personal Data that are not relevant for the purpose of the shopping request or for other specified purposes, or that are excessive for such purposes, should not be shared. Personal Data must only be used and disclosed in ways that are consistent with the Data Subject's expectations and choices. It should be possible to segregate data elements to process specific elements that provide personal information or identification in manner that complies with applicable laws.

No deceptive practices should be used, nor should the Personal Data be used in a way that may cause harm to the Data Subjects.

**Data Accuracy**

The Personal Data processed should be accurate and up to date. Adequate measures should be put in place in this respect.

**Data Retention**

The Personal Data should only be processed and retained for as long as reasonably necessary for the purposes of the Processing, in accordance with local laws.

A distinction should be made between the situation where a candidate traveler refuses all Offers and no transportation contract is concluded, and the situation where an Offer is accepted and the Personal Data are needed for the transportation contract between the traveler and the Airline, in which case the traveler’s Personal Data will be further processed for the purpose of the transportation contract: reference is made to IATA Recommended Practice 1174.

The Personal Data of a candidate traveler deciding not to accept any Offers should not be kept longer than necessary for establishing the refusal of the Offers. If the Personal Data are retained for sending new Offers or for replying to new shopping request, or for any other purpose, such as direct marketing, parties should see
to it that all requirements for such further use are complied with, including obtaining Consent as under applicable local laws.

There may be specific data retention obligations under applicable local laws. Airlines implementing NDC should take into account such applicable data retention obligations, if any.

**Data Subjects’ Rights**

The following rights of Data Subjects need to be taken into consideration, depending on applicable local laws and circumstances of use:

- The right to access to their Personal Data and obtain a copy;
- The right to have inaccurate or out of date Personal Data rectified, blocked, erased or destroyed;
- The right to object to Processing of Personal Data that is likely to cause or is causing damage or distress;
- The right not to be subject to decisions based solely on automated profiling (see above);
- The right to object to being subject to direct marketing (see above).

It is the Data Controller's duty to put adequate measures in place in order to enable Data Subjects to exercise their rights under applicable laws. Data Controllers may be entitled to request Joint Data Controllers, other Data Controllers, or Data processors to act on their behalf for allowing Data Subjects to exercise these rights. Adequate contractual arrangements should then be in place. Airlines should verify under applicable local what measures should be taken and what contractual arrangements are allowed.

**Notifications and Authorizations**

Data Controllers should see to it that any notification/authorization requirement with competent authorities is complied with.

**For the Processing of Personal Data**

In a number of countries the Processing of Personal Data is subject to filing obligations with the Data Protection Authority. For certain categories of Processing a prior authorization may be necessary (e.g. for Processing the Sensitive Data in the shopping request).
Parties implementing NDC should verify whether such implementation requires amendments to any such notifications filed, or requires new notifications or, where applicable, requires specific authorizations.

**For Data Transfers**

Data Transfers to countries that are not members of the EEA may need to be notified to the Data Protection Authority or an authorization from the Data Protection Authority may need to be obtained.

Parties implementing NDC should verify whether such implementation requires amendments to any such notifications filed, or requires new notifications or, where applicable, requires specific or additional authorizations.

**Interline Legal and Compliance Considerations**

Following the approval of NDC, as embodied in Resolution 787 of the Passenger Services Conference, Airlines will be free to develop indirect distribution channels implementing the NDC Standard. This approval in no way obviates compliance with existing obligations under applicable competition laws and regulations. In the context of NDC, such obligations apply only in the context of Offers or Orders that include an interline element. The following legal guidance summarizes how the NDC Standard can be used by Airlines seeking or making dynamically priced Offers for interline travel segments. These guidelines are to provide a general understanding of the potential competition law requirements and should not be understood as legal advice.

- Dynamic communication may be used by any two participating Airlines to seek or make pricing Offers for interline travel segments on which the soliciting and Offering Airline do not compete in response to a bona fide passenger ticketing enquiry for the subject route (no hypothetical requests are permitted).

- For purposes of this evaluation, two Airlines shall be deemed to compete when they each Offer air travel service to one or more airports in each of the locations within the origin and destination // city pair that is the subject of the interline travel segment NDC request.

- On routes for which the two Airlines do Offer competing air travel services, they may not seek or make dynamically priced Offers unless the two Airlines have received antitrust immunity (ATI) from relevant competition authorities. In cases where formal ATI for the two Airlines has been granted,
dynamically priced Offers may be used for interline travel segments on the same terms and conditions as non-competing routes.

Subject to the above conditions, dynamic communication may also be used to seek or make a pricing request for those ancillary services related to the bona fide ticketing enquiry for the subject interline segment. These ancillary services may include all customary services related to the class of service involved in the ticketing enquiry. Dynamic communication for solely ancillary services (i.e., the pricing request is limited to ancillary services and unrelated to an individual passenger journey) is not allowed. [Certain restrictions on responses to pricing requests for ancillary services may be imposed.]

Information received through the dynamic communication may be used solely for the purpose of fulfilling the bona fide passenger ticketing enquiry only and may not be used for any other purpose.

Note: A “hypothetical request” occurs where a Seller/Aggregator sends a shopping request to an ORA, or an ORA sends a request to a POA, without this request having first being initiated by a customer.

This also helps to minimize the number of unnecessary requests to Airline Offer Management Systems.