



NDC PILOT PROGRAM 2013 YEAR-END REPORT

Prepared by IATA
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NDC Pilot 2013 Year–End Report

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1. INTRODUCTION

IATA Resolution 787 provides the New Distribution Capability (NDC) foundation standard which IATA members can use as a benchmark in distributing their content through multiple channels. This will bridge the gap between the enhanced capabilities of direct vs. indirect channels with the aim to offer consumers enhanced competition through comparative shopping for members' products and services across all distribution channels.

Participants in a 2013 pilot responded to IATA's call to the industry in February 2013, to participate in the NDC pilot program. The overall pilot phase objective is to validate and enhance the business requirements and the schemas. Pilot participation is according to the NDC Pilot Terms of Reference and using the NDC published schemas.

The NDC pilot phase will provide important insight into the development of the NDC standard. However, it is important to note that the NDC standard may not be declared effective until Resolution 787 is approved by the US Department of Transportation.

In this section, the 2013 pilots are introduced by giving a summary of their work and a glimpse into what they have said about NDC. In chapter 2 we show the pilot coverage in 2013 in the context of the overall NDC roadmap. The pilot findings are then shared in chapter 3 in areas such as building the offer, content management and the airline profile. Highlights of the functional (schema) and non-functional (performance) aspects follow in chapters 4 and 5 respectively. Finally, the recommendations and next steps are outlined in chapter 6.

The five (5) pilots launched in 2013 are summarised below.

All pilots used the NDC Shopping 1.0 schemas, except pilot Endeavor, which used the NDC Baseline schemas. This was the only set of schemas available at the start of this pilot in May 2013. The NDC Shopping 1.0 schemas were made available in October 2013. Where possible, pilots implemented a handover to existing schemas / processes to fulfill the shopping request. This was the case for both the Endeavor and SkyDreamer pilots who have issued live transactions. SkyDreamer issued the first live transaction using NDC Shopping 1.0 and demonstrated the interoperability of the NDC shopping schemas with existing processes. A copy of this live transaction is found in Appendix I.

There was agency participation in all pilots, except the Alpine pilot which is focusing on various performance aspects of deploying NDC schemas.



Pilot Endeavor: American Airlines, JR Technologies (JRT) and US based consolidator: This pilot covers NDC Shopping, Booking and Ticketing messages and will offer AA Preferred Seat and Main Cabin Extra not available in a non-NDC channel and product bundles. Pilot kickoff: May 2013. Dec 2013 status: Pilot phase 1 complete, 1 live transaction issued. Demo made available at www.ndcpilots.com.

Pilot Skycouch: Air New Zealand, JR Technologies (JRT) and US based consolidator. This pilot will test the ability to easily describe the qualitative aspect of specific seat products offered by NZ. The pilot will enable agencies to display NZ SkyCouch Seats and Deluxe products accurately. It will also provide NZ products descriptions, price and flight schedules. Pilot kickoff: June 2013. Dec 2013 status: Integration testing in progress. Demo made available at www.ndcpilots.com .

Pilot SkyDreamer: Travelsky, Hainan Airlines and CTBA: Domestic travel is a high priority for Hainan Airlines. In phase 1, this pilot will verify that the NDC schema can support domestic travel in China. The second phase will focus on specific ancillary services of domestic travel and international travel. Pilot kickoff: October 2013. Dec 2013 status: Pilot phase 1 complete, 1 live transaction issued.

Pilot Sunshine: Travelsky, China Southern and Ctrip: The 2013 focus is on basic shopping using the NDC shopping schema. Phase 2 (2014) will focus on exposing rich content in shopping and will include booking and ticketing. Pilot kickoff: October 2013. Dec 2013 status: Development complete, integration testing in progress.

Pilot Alpine: Swiss International Air Lines, Datalex, PROS and HP: This pilot will test the performance of the NDC shopping Schemas against a high traffic volume. The focus is on 1) shopping and pricing requests and 2) flexible date shopping / sub-second responses. It will also use an agency GUI to demonstrate: A combined solution in a Travel Agency Context; a range of Airline Pricing Capabilities; comparison shopping across a range of Products; a-la-carte cross-sell of ancillary products; personalised offers for each of the above. Pilot kick-off: October 2013. Dec 2013 status: Phase 2 planning.

What did our pilot participants say?

"We were able to implement and demo an application that shows the capabilities of an NDC based system. From that point of view the Pilot was a success"

"By participating in an NDC pilot early, Travelsky has the chance to know what exactly NDC is, where NDC is going ... and how to leverage NDC schema. All these will help us to service our clients better"

"NDC is helping us ... to improve international marketing ability."



“The NDC Pilot gives us a chance to study the newest technology and industry standard. All these will help us expand our distribution channels and provide a better user experience to our clients”

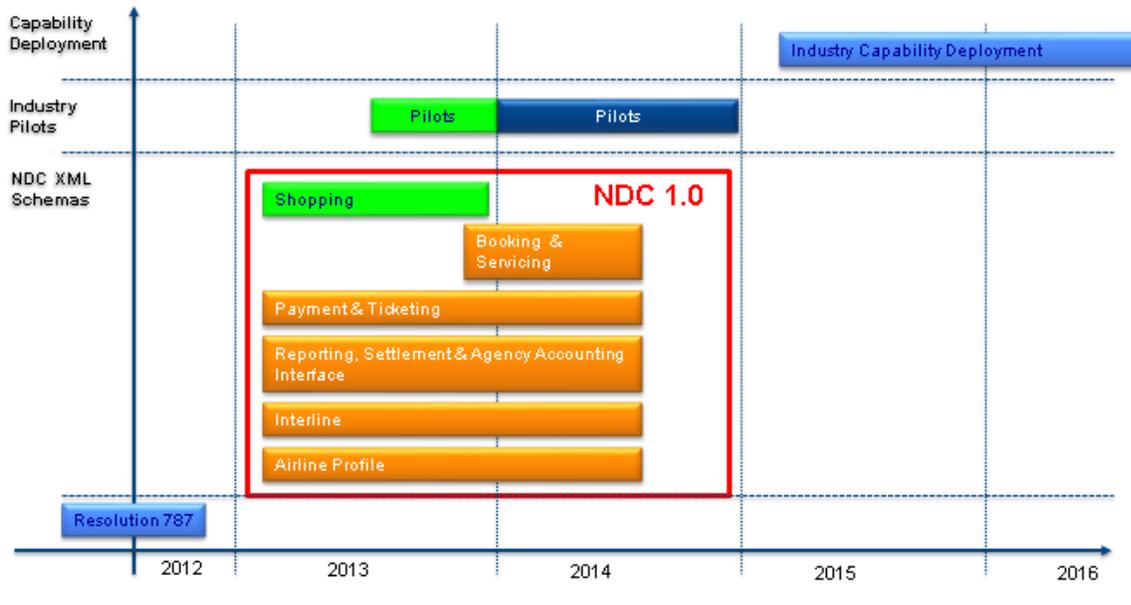
“From an airline perspective the pilot helped identify the type of additional content (flight attributes, rich content etc.) that can be made available ... to better support the travel agency needs.”

“The pilot highlighted just how NDC can be used to describe and show product details to a market segment that Air NZ doesn’t have a lot of direct contact with. Air NZ’s US reach is West Coast due to its schedule. The pilot demonstrates very clearly how product and service information can penetrate remote markets with NDC. “

2. 2013 PILOT COVERAGE

In 2013 the NDC Shopping 1.0 schemas were available to pilots. The pilot functional scope was therefore limited to the shopping aspect of NDC. The NDC roadmap below highlights the overall NDC schema coverage, the pilot roadmap will align to this. The urgency to deliver schemas is understood by IATA and the DDXWG and timelines for its delivery has taken this into consideration.

The NDC Roadmap



In 2014 IATA will encourage the industry to examine specific dimensions. These areas are listed in chapter 8 (next steps).

Pilots generally took an iterative approach, either starting with anonymous shopping and flight only, or focusing on various airline seat products.

Appendix II lists the coverage of the use cases, schemas used and ancillaries where applicable. It also highlights the pilots that explored the concept of the airline profile. Pilot reflections on the airline profile are included in the general findings chapter.

3. GENERAL FINDINGS

This section summarizes general findings by the pilot participants during the process of implementing the NDC shopping schemas. The three (3) main themes emerging from piloting the NDC Shopping schemas in 2013 are around:

- building the offer (including content management)
- schema availability
- connectivity

Also, in 2013, there were no schemas to support airline profile. However pilots were free to explore this area and provide their feedback. This is captured later in this section.

Building the Offer

The airlines recognise the need to provide complete pricing / offer details to their NDC partners. In cases where the airline system could not readily build the NDC offer, the airline authorized an IT provider to build the offer on its behalf. In one instance, the airline was able to support air availability and NDC seat availability messages. The IT provider built an NDC adapter to the airline API and created business logic to fulfill NDC AirShopping response. As a temporary measure for the purposes of this pilot phase, the IT provider captured and used existing fare information; this airline is looking at ways of providing this to their NDC partners.

The airline also did work to upgrade the airline system (various fare and content management components) in order to integrate with the API.

The aggregator is limited in providing content back to the seller/customer as this is based on the airline content returned via the airline API.



One airline considers that there is planning and work around these 3 main aspects of building the offer: 1) The air price component, 2) The offer rules and 3) ancillary services and baggage fees.

Content Management

In 2013, the Skycouch and Endeavor pilots provided rich content to the aggregator. In both cases, this was limited to seat information. Additional content and services such as meals, seat pitch, movies, Wi-Fi etc. currently available via the airline.com were not provided to the aggregator.

Airlines have rich content on their website but it may not be readily available to share with NDC partners. For example, airlines may not be centrally storing or maintaining rich product information. As such, airlines need to have a strategy to maintain currency of high quality product content and to make this available to their NDC partners.

For one of the pilots, as a temporary measure, the aggregator received URL access to the airline's rich content and managed the integration into the NDC response.

Schema Availability

Pilots rely heavily on the availability of the NDC schemas as well as quick turnaround in responding to change requests. Pilots have expressed that the scope and pace of their next steps depend on the release time / process of NDC 1.0. One airline indicated their intentions to adopt NDC for all their schema requirements. Their approach is to standardise their internal schema to adopt NDC.

Schema findings are described in more detail in chapter 5.

Connectivity

Pilots went through various processes to establish connectivity – some proving to be more difficult than others, requiring various layers of authentication and testing. Airlines and their NDC partners may experience delay in trying to setup connectivity, due to, for example lengthy IT Security requirements and policies. Though this is not unique to NDC, it notably contributed to project delay.

One airline realised the need to find plug and play / a robust solution for setting up future NDC connections, possibly establishing new internal approaches for security approvals.



The Airline Profile

The Airline Profile (AP) aims at streamlining the volume of NDC shopping requests sent to airline systems by aggregators or seller systems. Though there are no schemas to support the airline profile, pilots explored and provided feedback in this area.

The following represents parameters the airlines used or expected to use in an airline profile:

- The Uniform Resource Identifier (URI) of the Airline DAS API
- The payment methods accepted by the airline
- Messages supported by the airline
- Product content supported by the airline
- Valid routes supported by the airline
- Valid products supported by the airline
- The functions or services an airline supports, e.g. shopping, import PNR, booking, cancel, refund, suspend/unsuspended, change date, upgrade, sells insurance, error payment refund, seat

During the pilot, the airline profile information was either transmitted to the aggregator via a spreadsheet or it was setup in database at the aggregator and populated manually to handle the pilot scenarios. In one pilot, there were discussions for the airline to have direct access via an interface to manage their own airline profile. This is a potential next step. This airline believes it is important to agree up front with your partner what parameters should be built into an airline profile – each partnership will have differing levels on which the request would be based.

4. FUNCTIONAL / SCHEMA FINDINGS

The pilot schema findings are summarized below. These findings have been shared with the XML Taskforce and are taken into account in the ongoing development of the schemas.

1. Messages are too heavy
2. No enforced vocabulary
 - Different naming within schema and between schemas for same concept (e.g. O&D info)
3. Service/ Service Bundle & Offer definitions
 - Hard to understand & implement
 - Too much redundancy
 - Need separation of baseline versus dynamic pricing
4. Need enhanced “transparency” model in schema design



- Need a simpler method to transparently look at multiple carrier offers from a subset comparison points
- 5. Response messages
 - Need redesigned error/ business warnings/ marketing message nodes
 - Need container element for multiple response scenarios
- 6. Enhanced offer/ service branding required
- 7. Enhanced core definitions
 - Fare rules too abstract (block of text)
 - Penalties too rigid (need flexibility to support different categories)
- 8. Schema issues
 - AirShopping: Current design forces data redundancy in RS
 - AirShopping: Calendar Shopping does not work as designed (issues with Lead Pricing)
 - AirShopping: Need support for packaged fares with multiple segments
 - FlightPrice: Need additional request qualifiers based on operation type (individual versus group, trip type [one way, round trip, multi-segment])
 - FlightPrice: Missing functionality: Commission fee issues
 - FlightPrice: Missing functionality: Fare information related segment missing; other definition forces redundant data
 - SeatAvailability: Need optional service definition in request message
- 9. There is a constraint in schema structure when combining an NDC ShoppingRS with a non-NDC response

5. NON FUNCTIONAL REPORT

The focus of the Alpine pilot is on the non-functional aspect of NDC. This team will provide their detailed findings at a later time.

6. PILOT RECOMMENDATIONS AND NEXT STEPS

Pilot Recommendations

As stated in the general findings, the three (3) main themes emerging from piloting the NDC Shopping schemas in 2013 are around 1) building the offer, 2) schema availability and 3) connectivity. The results from the first pilot phase suggest that NDC adopters need to, at least, consider these factors in their planning.

The airlines recognise that they need to make an NDC offer to their NDC partners. In cases where the airline system was not ready to handle building an NDC offer, the airline authorized the IT provider to build the offer on its behalf. Airlines may consider this general approach as a transitional approach to NDC adoption.



Content Management also emerged as an area that airlines may not have thought about in detail. Airlines currently manage their product content, made available on their airline.com. However, they may not have considered 1) how to integrate and make rich content part of an NDC offer, or 2) how to make it easily available to external partners.

Content strategy (consistency, branding, updating content etc.) also needs to be considered. Airlines may take a transitional approach to making rich content accessible to NDC partners. They may manage this themselves (or via a 3rd party), they may give the aggregator or seller direct access to their content management system. The aggregator / seller may then integrate the rich content into the NDC response.

Airlines, aggregators and sellers are to consider the deployment activities required to authenticate (new external) NDC partners.

In 2013, IATA took an opportunistic approach to NDC pilots. In 2014, the aim is to have all critical aspects of NDC covered by pilots and ensure that feedback from these pilots is provided to DDXWG to fine-tune all aspects of NDC. For instance, new pilots may be encouraged to examine particular items on the list below. This list is not exhaustive but will help our monitoring and ensure that all key aspects of NDC are covered during the pilot phase.

- Top 3 Ancillaries (Seats, Bags, Other)
- Personalization
- Airline (Large network, Low cost)
- Interline and Codeshare (Merchandising, Flights)
- Pricing Rules and payment methods (Validate that the schemas support airlines passing information about their terms and conditions for dynamically priced offers)

The current Pilot Terms of Reference will be modified for 2014 pilots. This is to ensure that pilots which do not meet the current pilot requirements can still be accepted if they are examining useful / beneficial topics. An example of such a topic is examining the non-functional aspects of using the schemas.

The next steps of these five (5) current pilots depend heavily on the release of NDC Schema 1.0 and change requests submitted. Pilots are eagerly waiting schema releases, with one airline expressing their intention to adopt NDC for all their schema requirements. Below is the summarized view of next steps planned by these pilots.



2013 Pilots planned next steps

Pilots	Planned Next Step
<p>Endeavor</p> <p>(2013 live transaction)</p>	<p>IT provider to create adapter to convert NDC baseline → NDC shopping.</p> <p>Aggregator to design an integrated display with non-NDC airline.</p> <p>Airline to identify phase 2 functionality based on key findings.</p> <p>AA/agent contractual issues required before opening to agent before booking for real customers.</p>
Skycouch	<p>Fulfillment</p> <p>Affinity shopping</p> <p>Future needs:</p> <ul style="list-style-type: none"> - Air NZ to identify faring solution for shopping - Mechanism to keep content fresh and current
<p>SkyDreamer</p> <p>(2013 live transaction)</p>	<p>Rich content – Seats</p> <p>International scenarios</p> <p>Codeshare</p>
Sunshine	<p>Shopping (rich content)</p> <p>Booking</p> <p>Ticketing</p>
Alpine	<p>Demonstrate a range of Airline Pricing Capabilities</p> <p>Demonstrate the performance aspects of Fare Family Ancillary Bundle offers/ Demonstrate a-la-carte cross sell of ancillary products</p>



Appendix I - First live NDC transaction



电子客票行程提醒 ELECTRONIC TICKET ITINERARY

欢迎您乘坐海南航空公司班机！此通知单表明您在网上购票成功。

请您最迟在航班起飞前60分钟到达指定机场，凭网上购票时您所使用的有效身份证件到海南航空公司电子客票柜台办理乘机手续；
您在办理乘机手续时，将会得到登机牌；
请您持有效身份证件、登机牌办理安全检查手续；
如果您需要我们提供帮助，请与我们联系。

Welcome to fly Hainan Airlines!

This itinerary indicates that you have successfully purchased your E-Ticket for flight(s) of Hainan Airlines.

Please be notified that:

You are required to get to the indicated airport no later than 60 minutes before the scheduled departure time for check-in at the E-Ticket counter of Hainan Airlines. You must present the same valid ID card as which you used on Internet to purchase the E-Ticket.

You will get your Boarding Pass when you complete the check-in.

When you go through security check, you must present your valid travel documents and Boarding Pass.

If you need any assistance, please call us.

旅客姓名 NAME OF PASSENGER		王思远					
票号 ELECTRONIC TICKET NUMBER		880-2166817111	订座记录编号 BOOKING REFERENCE	NJ14MK	出票处信息 AGENT INFO	PEK205	
出票日期 DATE		2013年11月29日	身份识别号码 ID NUMBER	430104198704124616			
航段信息 SEGMENT				航班号 FLIGHT	舱位 CLASS	免费行李额 ALLOWANCE	订座情况 STATUS
1	自 [From] 至 [To]	PEK 北京首都 HAK 海口	2013年12月18日星期三15:40起飞 2013年12月18日星期三19:30到达	HU7782	豪华头等舱 Y	20.0KG	OK
2	自 [From] 至 [To]						
3	自 [From] 至 [To]						
4	自 [From] 至 [To]						
限制条件 RESTRICTIONS		不得签转					
实际支付金额 FARE PAID		CNY 1390.0(含税50.0+140.0)		付款方式 FORM OF PAYMENT			

注意：此行程提醒不作为报销凭证

网址：<http://hnair.travelsky.com/huet/> 销售热线：950718



Appendix II – Pilot Coverage

Pilots	Use Case	Ancillaries	Schemas	Airline Profile	Other
<p>*1 Endeavor</p> <p>(Issued live transaction)</p>	<p>Fare Search Booking Issue Ticket</p>	<p>SEATS</p> <ul style="list-style-type: none"> - AA Preferred Seat - Main Cabin Extra 	<p>NDC Baseline Schemas</p> <p><i>FareSearchRQ/RS</i> <i>FareRuleRQ/RS</i> <i>SeatAvailabilityRQ/RS</i> <i>PNRCreatRQ</i> <i>PNRViewRS</i> <i>PNRRetrieveRQ</i> <i>TicketIssueRQ/RS</i> <i>TicketEMDIssueRQ/RS</i> <i>TicketImageRQ/RS</i></p>	<p>AP built by Aggregator. Minimum usage in pilot</p>	<p>Product bundles</p> <p>NDC baseline schemas used for shopping, booking, ticketing.</p> <p>Used existing payment and settlement processes</p>
Skycouch	Anonymous Shopping	<p>SEATS</p> <ul style="list-style-type: none"> - Skycouch 	<p>NDC Shopping 1.0</p> <p><i>AirShoppingRQ/RS</i> <i>FileListRS.xsd</i> <i>ServiceListRS.xsd</i> <i>BaggageListRS.xsd</i> <i>SeatAvailabilityRS.xsd</i> <i>AirAvailabilityRS.xsd</i></p>	<p>AP built by Aggregator. Minimum usage in pilot</p>	<p>True Availability</p>
<p>SkyDreamer</p> <p>(Issued live transaction)</p>	Anonymous Shopping	<p>NONE</p> <ul style="list-style-type: none"> - Flight only in phase 1 	<p>NDC Shopping 1.0 integrated with Travelsky schemas for booking, ticketing.</p> <p><i>AirShoppingRQ/RS</i> <i>FlightPriceRS.xsd</i> <i>FlightPriceRQ.xsd</i></p>	<p>Simple AP built by Aggregator</p>	<p>Domestic travel</p> <p>Unbundled prices</p> <p>Used existing payment and settlement processes</p>
*Sunshine	Anonymous Shopping	<p>NONE</p> <ul style="list-style-type: none"> - Flight only in phase 1 	<p>NDC Shopping 1.0</p> <p><i>AirShoppingRQ/RS</i></p>	n/a	
Alpine		n/a	<p>NDC Shopping 1.0</p> <p><i>AirShoppingRQ/RS</i> <i>ServiceListRQ/RS</i></p>	n/a	<p>Branded fares</p> <p>Dynamic Pricing & availability</p> <p>Simulation in a production-like test environment.</p>

¹ * NDC Shopping with handover to existing processes/schemas to fulfill the shopping request