2015

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Putting NDC into Practice:

Reference Architecture and Technology Providers

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IATA's data standard NDC – the New Distribution Capability – continues to progress further with initial live implementations expected from 2016 on.[1] But how can an airline actually deploy the new XML format? Following the publication of an extensive NDC market study in the summer of 2015, PROLOGIS has been further investigating the new data standard with airline clients. One of the key takeaways from these involvements is the question of the different possibilities to technically implement NDC. With this paper, PROLOGIS aims to provide an overview of the suggested technical reference architecture for an airline to facilitate NDC and to introduce some of the NDC technology providers with their product and service offerings.

Airline Reference Architecture

NDC is a data standard based on XML messages exchanged via an API (Application Programming Interface). As a result, one could argue that facilitating NDC should not be too difficult: Just make sure that your current API is changed into an NDC XML API and you are ready to receive NDC content. Unfortunately, it is not that simple. In order to make use of the benefits of the new distribution standard, such as full and rich content display opportunities and the communication of ancillary product information, the airline's internal system architecture needs to be extended.

The core of an airline's system landscape lies in its Passenger Service System (PSS), typically consisting of an inventory system and a reservation system as well as sometimes a departure control system (DCS). If an airline wants to implement the new distribution standard, the question arises as to how the PSS needs to be enhanced to work with NDC. IATA suggests two main approaches visually displayed in Figure 1:

(1) To integrate NDC "*directly into the PSS itself.*"
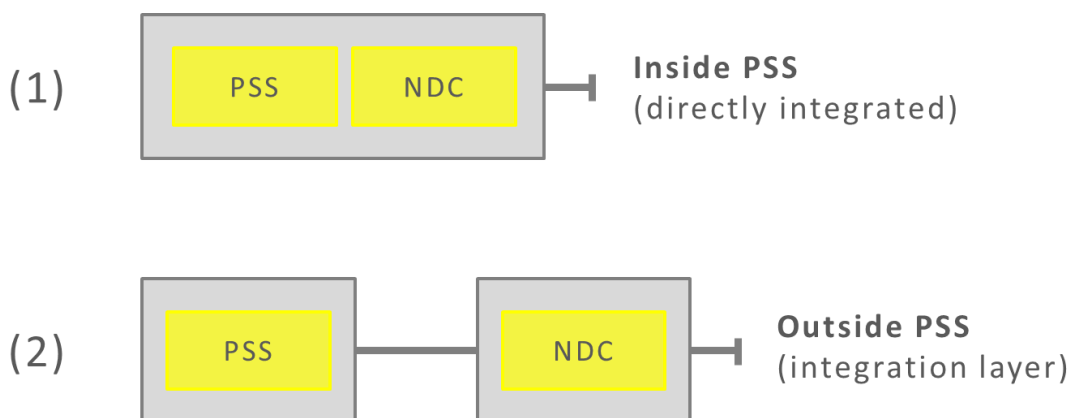(2) To use an "*integration layer inserted logically in front of the PSS with an adapter designed specifically for NDC.*"[2]

Figure 1: NDC implementation – two main approaches (illustration by PROLOGIS)

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[1] IATA.org/NDC (2015) – Road Map
[2] IATA (2014): p. 169

In case of approach (1), i.e. implementing NDC inside the PSS, the PSS providers are in demand to develop solutions to internally enhance their systems. Thus, in the short term, the simpler and faster deployment seems to be based on approach (2) – i.e. working with an integration layer and an NDC adapter. The layer should connect to different components and functional modules (see Figure 2). "Offer management & merchandizing" as well as "order management" represent the main NDC components. They are required to perform a full end-to-end NDC process. In addition, functional modules such as rich media (optional) and airline profile (mandatory) help facilitate NDC.
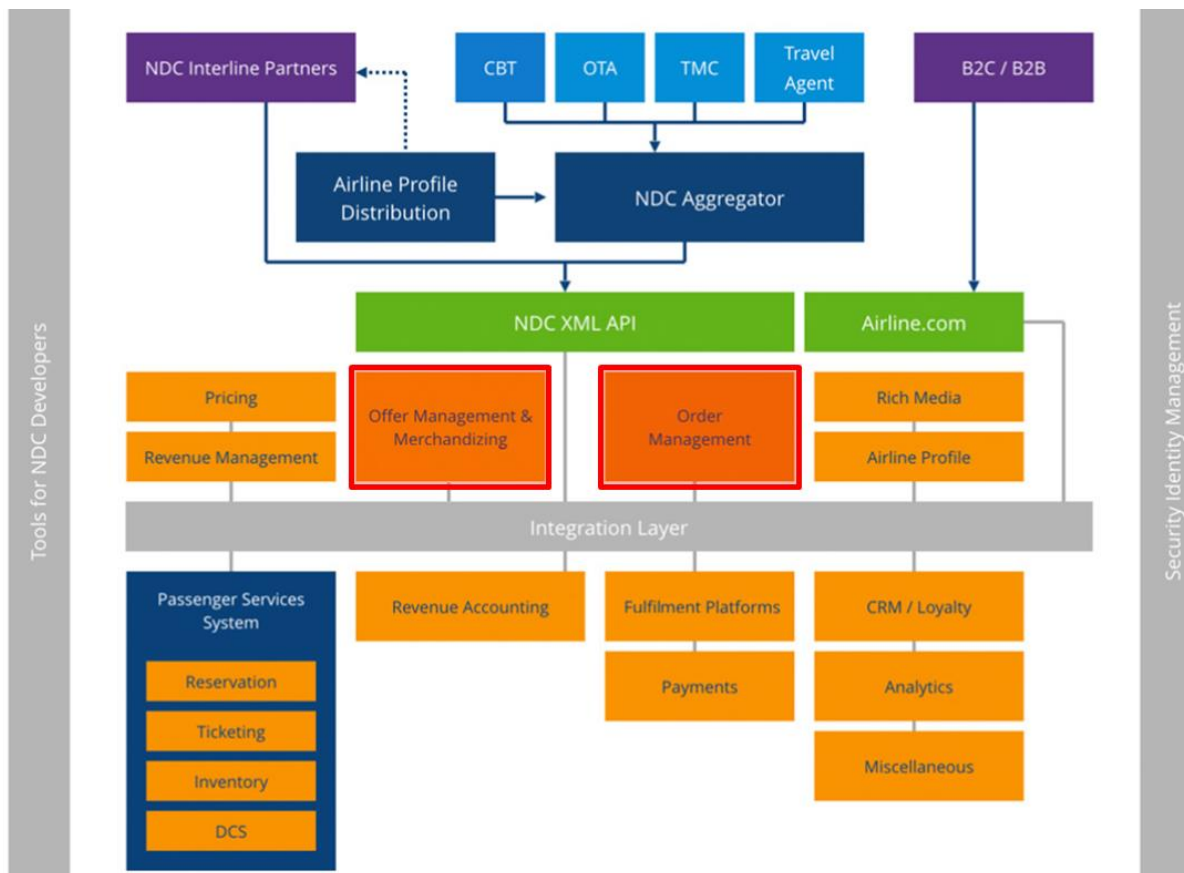

Figure 2: NDC Reference Architecture by IATA (source: StartNDC.IATA.org)

In the following, we will introduce some technology providers, primarily the ones who offer products and services that can be used for NDC implementation in compliance with approach (2) – an NDC solution outside and separate from the PSS. This outline shall help to get a better overall understanding on how technology solutions that are about to get ready for NDC can look like.

Technology Providers and Their Product and Service Offerings

The idea behind IATA's reference architecture is to be able to independently plug in a component or functional module whenever needed. As a result, technology providers can offer their products and services for only one or several components/modules.

Some of the best known providers that are planning to integrate both the NDC offer and order management schemas into their technologies are OpenJaw Technologies, Farelogix, JR Technologies and Datalex. Consequently, these providers should enable a full end-to-end NDC process flow. However, especially the offer management schemas are oftentimes still labeled as immature; providers are currently dealing with their integration.

Technology vendors such as OpenJaw, Farelogix and Paxport are working on integrating the NDC offer and order management schemas into their retail and merchandising platform solutions. These platforms sit above the airline's PSS with which they connect (see Figure 3), for example by using an XML API, web services exposed by the PSS provider or via EDIFACT messages. This way the PSS itself does not have to "speak" NDC. Information on fares, prices and availabilities can be accessed from the PSS in its current format. The merchandising platform itself (or other systems and modules upstreaming the integration layer) expose an NDC XML API, allowing retailers (e.g. OTMs and TCMs), NDC aggregators and interline partners to connect with the airline to access its full catalog of products. The airline can also connect its airline.com website using NDC XML if desired.

To give a simple example for the offer creation: The Merchandising Platform receives information on a base fare of 30 EUR from the PSS. The final offer can then be created within the Merchandising Platform by adding a seat reservation (20 EUR) and a bag (15 EUR), amounting to a total of 65 EUR.
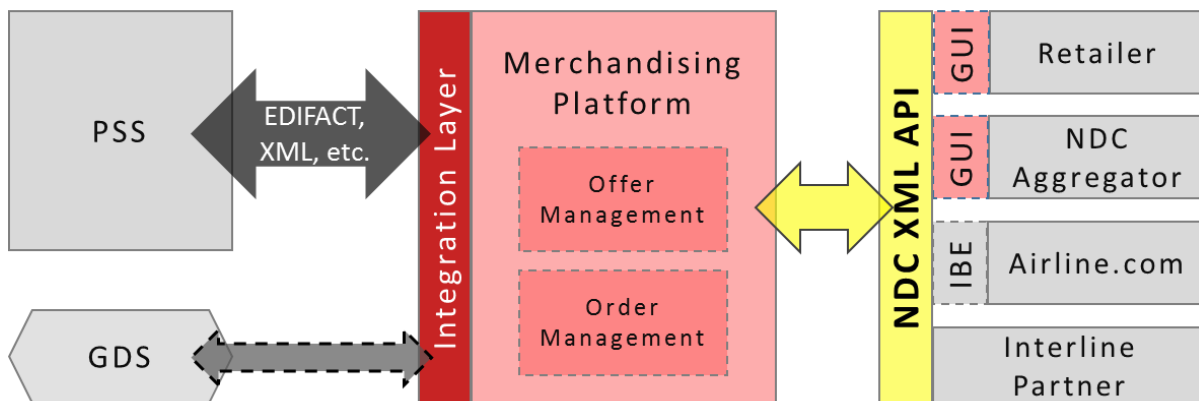

Figure 3: Merchandising Platforms and NDC (illustration by PROLOGIS)

While Farelogix and OpenJaw may already be known, possibly not everyone has heard from Paxport before. A key focus of the Swedish vendor is to enable both sales of flight related services and personalized non-flight related services through the airline's indirect distribution channels such as OTAs and tour operators. Moreover, Paxport offers merchandising and retailing tools. Their purpose is to increase the ancillary revenues delivered through the reseller channel.

Vendor Vayant focuses on offerings in the field of pricing and shopping. It also acts as an aggregator. The Vayant technology is placed between the airline's PSS and the IBE (Internet Booking Engine)/e-commerce. It also offers a Rich Media module as well as an Airline Profile module solution. Furthermore, Vayant is a legal ATPCO (Airline Tariff Publishing Company) subscriber. Such a solution could be of interest to airlines that want to introduce NDC offer management only.

The direct integration of NDC in the PSS is likely to be more complex to implement compared to the above outlined possibilities for a technological NDC implementation outside the PSS. Nevertheless, the PSS/GDS providers Amadeus and Sabre as well as the Chinese Monopolist TravelSky are all using NDC. With regard to smaller PSSs, the vendor IBS Software Services is actively working on extending its iFly Res solution for NDC. According to David Friderici (VP & Head Product Mgmt & Strategy - Airline Travel Services at IBS) the PSS will be "*natively NDC ready*" by fall 2015.

In the field of NDC content aggregation, Travelfusion provides an NDC XML API. Today, this aggregator already powers more than 400 agency customers and is integrated with over 200 airlines. The content is received from the airlines via an XML API whenever possible or via a screen scraping connection (HTML). The content received can then be enhanced with additional content and forwarded to agencies in the NDC XML format.

References

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