NEW DISTRIBUTION CAPABILITY

TMC Reference Architecture

Edition 1.0

June 2018

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Preface

For several years, IATA and our partners in the travel value chain have been working on the New Distribution Capability (NDC), an XML-based data transmission standard that will enhance the capability of communications between airlines and travel agents, including travel management companies (TMCs).

IATA has already published several documents to help travel agents better understand NDC (Change Readiness Guide) and to capture their views on these changes taking place (NDC: Travel Agents' Enabler to Success). We are now sharing this new report on TMC Reference Architecture.

This document has been drafted in partnership with a diverse group of nine TMCs and it is a framework to help unbundle the different processes and tasks performed by travelers and travel agents when shopping and booking for air travel.

The objective is to help all stakeholders in the value chain understand the complexity and innovation opportunity in the TMC IT architecture.

This document should be particularly helpful for TMCs in reviewing their IT architecture during their NDC implementation. Here they will find guidance on how to build a modular IT infrastructure should they choose this option. IT providers will be able to better identify their TMCs' technology needs and build solutions. Finally, the airlines will be able to better understand the travel agency environment and their requirements.

As we continue to develop tools to support the industry adoption of NDC, we welcome your comments and feedback.

Olivier Hours
Head, NDC Engagement and Adoption

Find more information on www.iata.org/ndc

The TMC Reference Architecture

Why do we need a TMC reference architecture?

A few years ago, IATA led the design of an airline NDC reference architecture that offers possible guidance and structure for planning and deploying NDC projects from an airline's perspective. This architecture is widely referenced across the industry today.

Leveraging on this work, IATA is now proposing a reference architecture that provides a framework for TMCs to build a modular IT infrastructure. The reference architecture highlights the important components a TMC may wish to consider for the successful implementation of NDC.

This architecture was also built with corporate buyers and travel managers' needs in mind.

The main objective is to address current feedback on mid- & backoffice blockers to NDC adoption and create a tool to help and inspire the travel industry:

1/ For TMCs to think about their future IT (from small to large TMCs)

2/ For IT providers to identify technology needs and build solutions

3/ For airlines to better understand the complexity of the travel agency environment and requirements
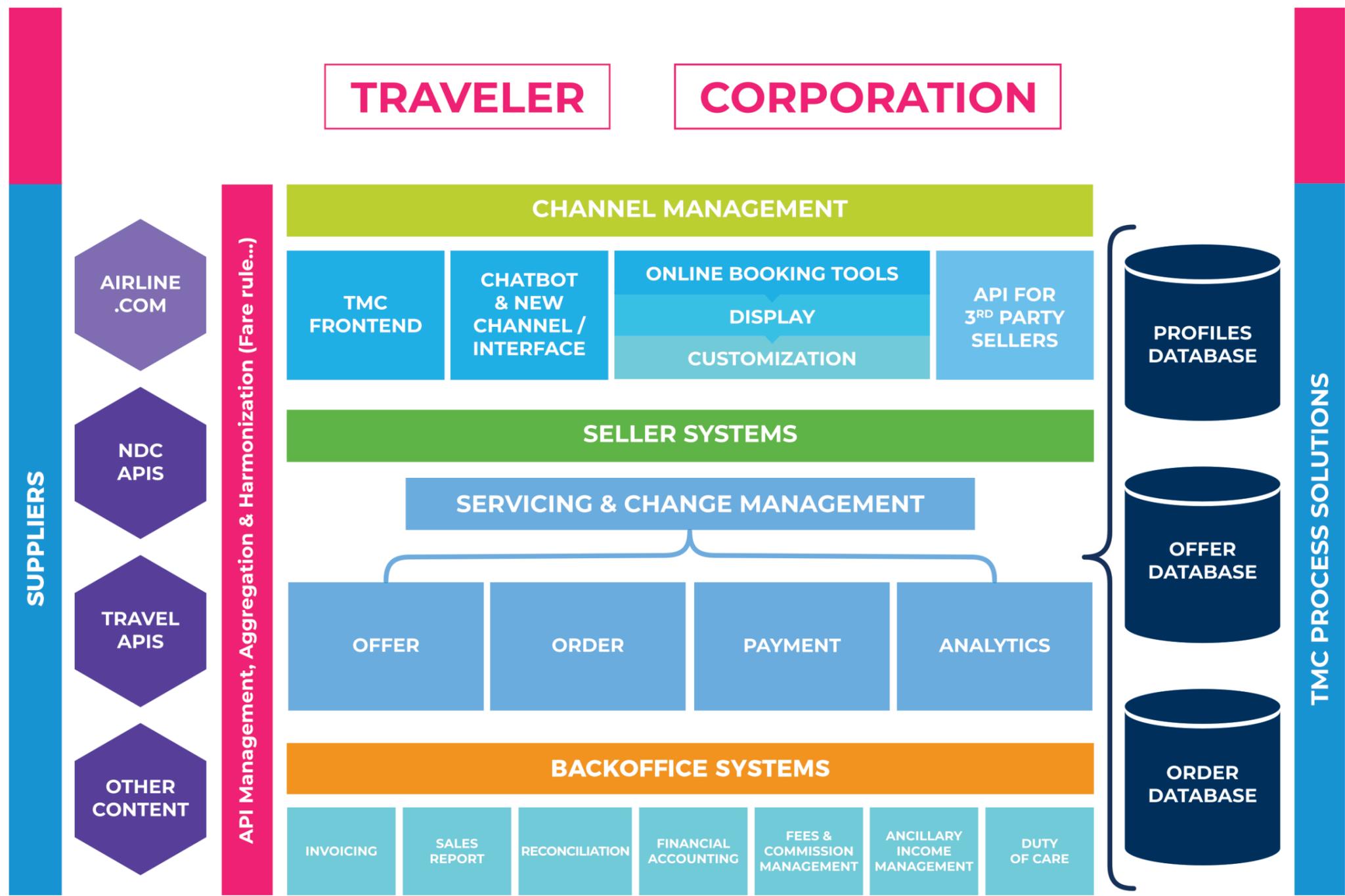
How was the TMC reference architecture created and validated?

The reference architecture was designed by IATA together with a group of TMCs covering a wide spectrum of business models, sizes and markets. Some extensive pre-work with subject matter experts was done to understand the TMC distribution processes, as well as the flows of information between the different actors of the distribution ecosystem for corporate travel.

The draft was then thoroughly discussed during a session with representatives from 9 TMCs in order to agree on a final proposal. The architecture was validated by a group of airlines who added some insights from a content supplier perspective.

RESEARCH

DESIGN

VALIDATION

The TMC reference architecture explained

TRAVELER   CORPORATION

SUPPLIERS

- AIRLINE.COM
- NDC APIS
- TRAVEL APIS
- OTHER CONTENT

API Management, Aggregation & Harmonization (Fare rule...)

CHANNEL MANAGEMENT

TMC FRONTEND	CHATBOT & NEW CHANNEL / INTERFACE	ONLINE BOOKING TOOLS DISPLAY CUSTOMIZATION	API FOR 3RD PARTY SELLERS

SELLER SYSTEMS

SERVICING & CHANGE MANAGEMENT

OFFER	ORDER	PAYMENT	ANALYTICS

BACKOFFICE SYSTEMS

INVOICING	SALES REPORT	RECONCILIATION	FINANCIAL ACCOUNTING	FEES & COMMISSION MANAGEMENT	ANCILLARY INCOME MANAGEMENT	DUTY OF CARE

PROFILES DATABASE

OFFER DATABASE

ORDER DATABASE

TMC PROCESS SOLUTIONS

Servicing and change management is a process across seller systems

THE MAIN PRINCIPLES OF THE ARCHITECTURE

1/ It is focused on a customer retailing experience

2/ It is offer and order centric: the order database is the source for mid- and backoffice functions. This is also fully compliant with the ONE Order vision.

3/ It is modular: it consists of specific modules that interact with each other but can be replaced independently

4/ It splits core architecture (UIs, seller and backoffice systems) from the periphery (aggregation / harmonization layer).

CHANNEL MANAGEMENT

How to access and display content.

SELLER SYSTEMS

How to sell and process content.

BACKOFFICE SYSTEMS

How to manage back end functions.

The features of the reference architecture are organized in **3 layers**

Description of the main modules

The main components of channel management

There are 2 customers to the TMC: the traveler and the corporate. TMCs are contracted by corporates, however they provide services to the final consumer, the traveler.

TMCs therefore deliver different types of services:
• commercial service for the traveler who wants to book,
• reporting, duty of care, etc., service for the corporate and its travel team (corporate buyer, travel manager).

TMC Frontends

They are used by the travel agent and provide access to airlines products and services; the interaction with the traveler is done by phone or e-mail to book, change, etc., their flights.

Online Booking Tools

They are accessed by the traveler directly and answer corporation needs in terms of travel policy and purchasing strategy.

New channels are developing fast

For example chatbots and mobile applications used by the traveler enable a fast interaction, in particular within an NDC environment.

API for 3rd party sellers

The TMC may allow 3rd party to access its selling platform.

The main components of seller systems

Offer

This component enables the TMC to have access to supplier offers and orders (priced offers, extra services). This includes:
• Airline NDC APIs, etc.
• Travel APIs (rail, car, etc.)
• Other content feed (hotel, visa, etc.)
• Airline.com

The different sources of content are aggregated and harmonized at the API Management, Aggregation and Harmonization layer.
The TMC's main function is to combine NDC offers returned by the airlines and additional non-NDC content offers to display the final offers as per the traveler's need and corporate travel policy using one or more of different channels covered under the channel management layer. The traveler's preferences and corporate policies are stored in the **profiles database**.

The TMC may store all offer requests in an **offer database.**

Order

Once the offer is selected by the traveler, the TMC requests orders from the different suppliers. In an NDC environment, the airline may create the order based on the traveler's preferences. The booking needs to contain personal information (preferences, loyalty card, contacts, etc.) and professional details (Company, Employee ID, Corporation form of payment, etc.).

The order module is fed by the **profiles database** from the TMC that includes both traveler information (identity, Frequent Flyer Program, etc.) and corporate information (policy, etc.).

The order module of the TMC is sending order requests to the airline, as well as payment information.

The TMC will store orders in the **order database**, as the main source of mid- and backoffice.

Payment

Alongside traditional methods of payment, the TMC needs to be able to manage specific forms of payments of the business travel industry (lodge cards, credit cards). Within NDC, there is an opportunity to send alternative payment forms to the airline and to implement new workflows. TMCs will be in a position to implement more sophisticated payment gateways.

Servicing and Change Management

This is a process across seller systems, not a module per se. It is a core function of the TMC and shown explicitly in this architecture. It is primarily done in the order module, querying the airline for servicing (voluntary rerouting) or getting messages from the airline (involuntary rerouting).

Analytics

The analytics functionality is fed by the different databases **(offer and order databases)**. It can entail any data relevant for both the TMC and corporate customers (rates evolution, etc.), or for 3rd party (card scheme, etc.).

The main components of Backoffice Systems

Invoicing function

The invoicing function automates the process of editing invoices. Invoices have to include legal information such as the corporation details and analytical data. The backoffice system also delivers invoices to the client either via e-mail and/or display online via a SAS platform.

Sales reporting

The backoffice system offers real time reporting access to the TMC (control cash balance, market share by vendor, productivity performance, etc.) and to the corporation (CO2 report, online adoption rate, top suppliers, etc.).

Account reconciliation

The backoffice system integrates and reconciliates accounts payable, accounts receivable and general ledger. It enables the travel agent to check the status of remittance & settlement with the airlines, invoicing of customers, etc.

Financial accounting

The backoffice system gives TMCs an overview and control over their finances and helps them to manage local currencies and tax rules. It also provides reports on financial performance. It enables them to pilot their business at different levels of granularity (per entity, per customer etc.).

Fees and commission management

The backoffice system must be able to manage fee grids for each client of the TMC: management fees, transaction fees, merchant fees can be set up by product and/or service.

Ancillary income management

Depending on airlines and corporates commercial models, the TMC may have specific fees to manage. This is highlighted as a separate backoffice tool, since there is a growing need to accommodate airlines' implementation of new products and services.

Duty of care

The backoffice system manages all orders of the TMC and therefore the system can feed other 3rd party suppliers such as Duty of Care solutions, with real time trip information.

Our sincere thanks

IATA WOULD LIKE TO THANK THE NINE TMCS WHO PARTICIPATED IN THE DESIGN OF THIS REFERENCE ARCHITECTURE.

CLARITY

CLICK TRAVEL

CTI TRUSTED TRAVEL PARTNER

FCM TRAVEL SOLUTIONS

HAVAS VOYAGES

HOGG ROBINSON GROUP

TRAVEL PLANET

TUI GROUP

WTMC

THE REFERENCE ARCHITECTURE FIRST DRAFT WAS DESIGNED IN COOPERATION WITH GUILLAUME DEBOMY FROM CONSULTING FIRM UKYK.

IATA