

Our NDC Implementation Update

NDCHUB

魏勃龙, Jack

Agenda

- Our implementation
- Our demo focus
- Discussion topic(s)



Our implementation

- Latest schema version implemented
 - 18.1**
- Servicing messages implemented
- **AirShopping, OfferPrice, OrderCancel, OrderChange, OrderCreate, OrderRetrieve, OrderView, FareRules, ServiceListRQ, SeatAvailability**
- Roles (e.g. seller IT Provider, Aggregator, TMC)
- **Aggregator**
- Ancillaries supported
- **Seat & Baggage**
- Payment method supported
- **BSP & None-BSP (Credit Card, UATP ...)**
- 1 other feature you would like to highlight
- **NDC Ecosystem**
- 1-2 big implementation concerns
- **High L2B**

Our New Brand: NDCHUB



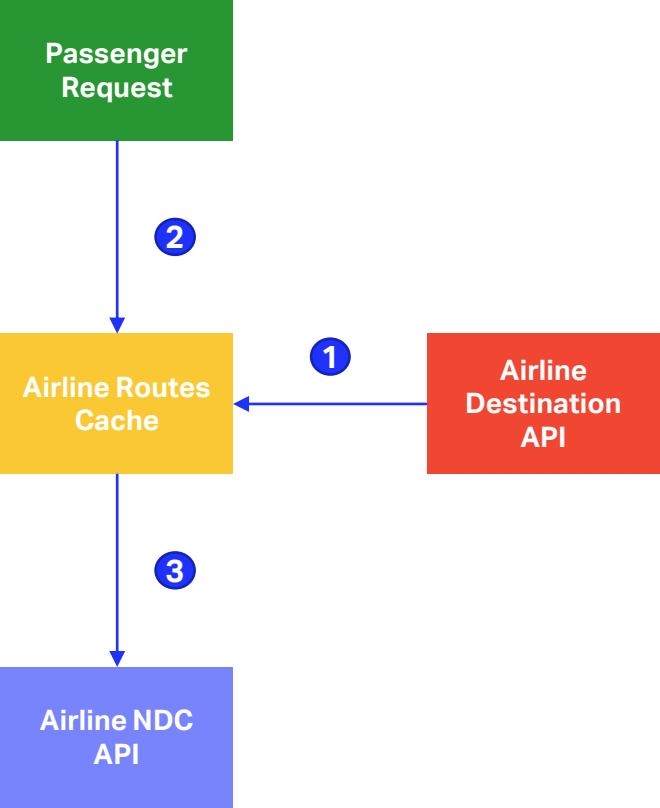
- To avoid confusion about PKFARE's two businesses: Global B2B Marketplace and NDC Aggregator, we launched our new brand NDCHUB
- NDCHUB will focus on NDC business including current NDC business under PKFARE before and new NDC business in future
- NDCHUB is also IATA level-4 NDC aggregator



Discussion topics

High L2B will be a big obstacle in accelerating NDC volume, airline profile or similar API will be helpful on this.

Airlines Destination API



```

    "airportCode": "YUL",
    "airportName": "Pierre Elliott Trudeau Intl",
    "cityCode": "YMQ",
    "cityName": "Montreal",
    "countryCode": "CA",
    "countryName": "Canada",
    "isSQGtwyFlg": false,
    "isMIGtwyFlg": false,
    "timeZone": "America/Montreal",
    "isCIBOrigin": true,
    "isCIBDestination": true,
    "isORBOrigin": true,
    "isORBDestination": true,
    "isTROOrigin": false,
    "isTRDestination": false,
    "isRailPointStation": false,
    "isCoachPointStation": false,
    "excludedCountries": [
      "GB",
      "US",
      "DE",
      "FR",
      "CA",
      "CH",
      "IT",
      "DE",
      "AT",
      "EG",
      "BE",
      "ZA",
      "SA"
    ]
  
```

```

    "flights": [
      {
        "seasonCode": "W17",
        "operationalFlightAirline": "AF",
        "departureStation": "CDG",
        "arrivalStation": "JNB",
        "operationalFlightNumber": "990",
        "departureDay": 7,
        "arrivalDay": 1,
        "departureTime": "23:30",
        "arrivalTime": "11:10",
        "aircraftOwner": "AF",
        "aircraftType": "388",
        "aircraftSubtype": "W",
        "aircraftTypeIcaoCode": "A388",
        "aircraftTypeName": "AIRBUS A380-800 PASSENGER",
        "firstCabin": 9,
        "businessCabin": 80,
        "economyPremiumCabin": 38,
        "economyCabin": 389,
        "firstCabinName": "La Première",
        "businessCabinName": "Business",
        "economyPremiumCabinName": "Premium Economy",
        "economyCabinName": "Economy",
        "departureStationName": "CHARLES DE GAULLE AIRPORT",
        "arrivalStationName": "O.R. TAMBO INTERNATIONAL AIRPORT",
        "departureCityName": "PARIS",
        "arrivalCityName": "JOHANNESBURG",
        "departureCountryName": "FRANCE",
        "arrivalCountryName": "SOUTH AFRICA"
      }
    ]
  
```

```

    "FlightSegment": {
      "DepartureAirport": {
        "CodeContext": "IATA",
        "LocationCode": "SAW"
      },
      "ScheduleValidStartDate": "2017-10-11",
      "ScheduleValidEndDate": "2017-10-18",
      "ArrivalAirport": {
        "CodeContext": "IATA",
        "LocationCode": "ESB"
      },
      "MarketingAirline": {
        "Value": "TURKISH AIRLINES",
        "Code": "TK"
      },
      "StopQuantity": "0",
      "DaysOfOperation": {
        "OperationSchedule": {
          "OperationTimes": {
            "OperationTime": {
              "Text": "12345."
            }
          }
        }
      },
      "RPH": "0_1",
      "Equipment": {
        "Value": "UNKNOWN_PLANE",
        "AirEquipType": "78G"
      },
      "DepartureDateTime": "2017-10-11T10:00:00",
      "ArrivalDateTime": "2017-10-11T11:05:00",
      "FlightNumber": "TK2968",
      "OperatingAirline": {
        "FlightNumber": "TK2968",
        "Value": "TURKISH AIRLINES",
        "Code": "TK"
      },
      "JourneyDuration": "P0D1H5M0.000S"
    }
  
```



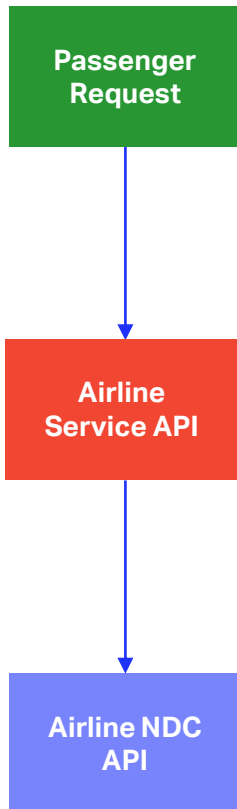
Airlines Flight Information API



```
{
  "airline": "LH",
  "flightNumber": 400,
  "suffix": "",
  "periodOfOperationUTC": {
    "startDate": "05DEC19",
    "endDate": "05DEC19",
    "daysOfOperation": " 4 "
  },
  "periodOfOperationLT": {
    "startDate": "05DEC19",
    "endDate": "05DEC19",
    "daysOfOperation": " 4 "
  },
  "legs": [
    {
      "sequenceNumber": 1,
      "origin": "FRA",
      "destination": "JFK",
      "serviceType": "J",
      "aircraftOwner": "LH",
      "aircraftType": "74H",
      "aircraftConfigurationVersion": "F8C80E32M244",
      "registration": "",
      "op": true,
      "aircraftDepartureTimeUTC": 590,
      "aircraftDepartureTimeDateDiffUTC": 0,
      "aircraftDepartureTimeLT": 650,
      "aircraftDepartureTimeDateDiffLT": 0,
      "aircraftDepartureTimeVariation": 60,
      "aircraftArrivalTimeUTC": 1120,
      "aircraftArrivalTimeDateDiffUTC": 0,
      "aircraftArrivalTimeLT": 820,
      "aircraftArrivalTimeDateDiffLT": 0,
      "aircraftArrivalTimeVariation": -300
    }
  ],
  "dataElements": [
    {
      "startLegSequenceNumber": 1,
      "endLegSequenceNumber": 1,
      "id": 10,
      "value": "UA8841/ET1610/SN7230/TG7700"
    },
    {
      "startLegSequenceNumber": 1,
      "endLegSequenceNumber": 1,
      "id": 98,
      "value": "1"
    }
  ]
}
```



Airlines Service API



Request Examples

```
GET /offers/lounges/FRA?cabinClass=E  
GET /offers/lounges/FRA?tierCode=SEN&lang=de
```

```
<LoungeResource>  
<Lounges>  
<Lounge>  
<Names>  
<Name LanguageCode="de">Thai Royal Silk Lounge</Name>  
<Name LanguageCode="en">Thai Royal Silk Lounge</Name>  
</Names>  
<AirportCode>BKK</AirportCode>  
<CityCode>BKK</CityCode>  
<Locations>  
<Location LanguageCode="de">Thai Royal Silk Lounge: Abflugsbereich C, Ebene 3, in der Nähe von Gate C1, auf der linken Seite</Location>  
<Location LanguageCode="en">Thai Royal Silk Lounge: Concourse C, 3rd floor, near gate C1, left side</Location>  
</Locations>  
<OpeningHours>  
<OpeningHours LanguageCode="de">05:00 - 02:00 Uhr</OpeningHours>  
<OpeningHours LanguageCode="en">05:00 am - 02:00 am</OpeningHours>  
</OpeningHours>  
<Features>  
<NonSmokingLounge>true</NonSmokingLounge>  
<Restrooms>true</Restrooms>  
<ShowerFacilities>true</ShowerFacilities>  
<RelaxingRooms>true</RelaxingRooms>  
<MeetingRooms>true</MeetingRooms>  
<OfficeUnits>true</OfficeUnits>  
<CopyMachine>false</CopyMachine>  
<FaxMachine>false</FaxMachine>  
<MAMPinter>false</MAMPinter>  
<CreditCardTelephone>true</CreditCardTelephone>  
<FreeLocalTelephoneCalls>false</FreeLocalTelephoneCalls>  
<PCwithInternetAccess>true</PCwithInternetAccess>  
<DataPortForLaptops>false</DataPortForLaptops>  
<WLANFacility>true</WLANFacility>  
<TV>true</TV>  
</Features>  
<MagazinesAndNews>  
<German>false</German>  
<International>true</International>  
<Local>true</Local>  
</MagazinesAndNews>  
</Lounge>  
...  
</Lounges>  
<Meta Version="1.0.0">
```



It could save lots of work for aggregators if fare rules could be standardized from schemas level

Fare Rules in Free Text



```
<Rule Category="PEN" Source="">
  <Text>PENALTIES</Text>
  <Text>FARE RULES TEXT</Text>
  <Text>UNLESS OTHERWISE SPECIFIED</Text>
  <Text>CHANGES</Text>
  <Text>ANY TIME</Text>
  <Text>CHARGE AED 300.</Text>
  <Text>WAIVED FOR DEATH OF PASSENGER OR FAMILY MEMBER.</Text>
  <Text>CHARGE AED 600 FOR NO-SHOW.</Text>
  <Text>CANCELLATIONS</Text>
  <Text>ANY TIME</Text>
  <Text>CHARGE AED 350 FOR CANCEL/REFUND.</Text>
  <Text>WAIVED FOR DEATH OF PASSENGER OR FAMILY MEMBER.</Text>
  <Text>CHARGE AED 700 FOR NO-SHOW.</Text>
  <Text>GENERAL RULES TEXT</Text>
  <Text>UNLESS OTHERWISE SPECIFIED</Text>
  <Text>NOTE -</Text>
  <Text>CHANGES</Text>
  <Text>-----</Text>
  <Text>--</Text>
  <Text>... A CHANGE IS A DATE/FLIGHT/ROUTING/BOOKING</Text>
  <Text>CODE CHANGE.</Text>
  <Text>... CHANGE FEE APPLIES PER PASSENGER PER</Text>
  <Text>TRANSACTION.</Text>
  <Text>... CHANGE FEE DOES NOT APPLY TO INFANT NOT</Text>
  <Text>OCCUPYING A SEAT.</Text>
  <Text>... CHD/INF WITH A SEAT DISCOUNT DOES NOT APPLY</Text>
  <Text>ON THE CHANGE/REROUTING FEES.</Text>
  <Text>... CHANGE IS PERMITTED WITHIN TICKET VALIDITY OF</Text>
  <Text>ORIGINAL TICKET.</Text>
  <Text>... CHANGES ONLY PERMITTED TO FARE OF EQUIVALENT</Text>
  <Text>OR HIGHER VALUE.</Text>
  <Text>-----</Text>
  <Text>--</Text>
  <Text>WAIVERS</Text>
  <Text>1.WAIVED FOR DEATH OF PASSENGER OR FAMILY MEMBER.</Text>
  <Text>A COPY OF VALID DEATH CERTIFICATE ISSUED BY A</Text>
  <Text>COMPETENT MEDICAL AUTHORITY IS REQUIRED.</Text>
  <Text>FAMILY MEMBERS AS DEFINED IN CONDITIONS OF</Text>
  <Text>CARRIAGE OR PASSENGER AIRLINE TARIFF RULE BOOK.</Text>
  <Text>2.NO WAIVER APPLICABLE FOR ILLNESS OF PASSENGER</Text>
  <Text>OR FAMILY MEMBER.</Text>
  <Text>3.CONTACT OFFICE FOR WAIVERS DEFINED ABOVE.</Text>
  <Text>-----</Text>
  <Text>--</Text>
  <Text>CHANGES AGAINST NO SHOW</Text>
  <Text>- A NO-SHOW FOR A FLIGHT IS CONSIDERED WHEN A</Text>
  <Text>PASSENGER FAILS TO REPORT TO THE AIRPORT AS</Text>
  <Text>BOOKED ONE HOUR BEFORE DEPARTURE OF THE</Text>
  <Text>SCHEDULED FLIGHT.</Text>
  <Text>- FAILURE TO UTILISE TICKET AS BOOKED ON ANY</Text>
```

```
</fareRuleText>
<fareRuleText>
  <freeTextQualification>
    <textSubjectQualifier>3</textSubjectQualifier>
  </freeTextQualification>
  <freeText>
    TO CANCEL ONWARD OR RETURN RESERVATION.</freeText>
</fareRuleText>
<fareRuleText>
  <freeTextQualification>
    <textSubjectQualifier>3</textSubjectQualifier>
  </freeTextQualification>
  <freeText>
    -----</freeText>
</fareRuleText>
<fareRuleText>
  <freeTextQualification>
    <textSubjectQualifier>3</textSubjectQualifier>
  </freeTextQualification>
  <freeText>
    NAME CHANGE. CHANGE OF PASSENGER ALLOWED BEFORE</freeText>
</fareRuleText>
<fareRuleText>
  <freeTextQualification>
    <textSubjectQualifier>3</textSubjectQualifier>
  </freeTextQualification>
  <freeText>
    DEPARTURE OF THE FIRST FLIGHT SEGMENT FOR FEE</freeText>
</fareRuleText>
<fareRuleText>
  <freeTextQualification>
    <textSubjectQualifier>3</textSubjectQualifier>
  </freeTextQualification>
  <freeText>
    75.00 EURO OR EQUIVALENT IN LOCAL CURRENCY TO BE</freeText>
</fareRuleText>
<fareRuleText>
  <freeTextQualification>
    <textSubjectQualifier>3</textSubjectQualifier>
  </freeTextQualification>
  <freeText>
    COLLECTED ON EMD.</freeText>
</fareRuleText>
<fareRuleText>
  <freeTextQualification>
    <textSubjectQualifier>3</textSubjectQualifier>
  </freeTextQualification>
  <freeText>
    ONLY ALLOWED WHEN WHOLE ITINERARY AND FLIGHTS IN</freeText>
</fareRuleText>
<fareRuleText>
  <freeTextQualification>
    <textSubjectQualifier>3</textSubjectQualifier>
  </freeTextQualification>
  <freeText>
    THE PNR ARE MARKETED BY AY AND OPERATED BY</freeText>
</fareRuleText>
<fareRuleText>
  <freeTextQualification>
    <textSubjectQualifier>3</textSubjectQualifier>
  </freeTextQualification>
  <freeText>
    AY/TF/WF OR NORDIC REGIONAL AIRLINES.</freeText>
</fareRuleText>
<fareRuleText>
```



Services in Free Text



```
<Descriptions>
  <Description>
    <Text refs="PRIOCHECK">Yes</Text>
  </Description>
  <Description>
    <Text refs="PERSITEM">Briefcase, laptop or handbag</Text>
  </Description>
  <Description>
    <Text refs="PRIOSEC">Yes, where available</Text>
  </Description>
  <Description>
    <Text refs="BAGALLO">1 bag</Text>
  </Description>
  <Description>
    <Text refs="PERSITEMDETAILS">40x30x15 cm (16x12x6 in)</Text>
  </Description>
  <Description>
    <Text refs="CARRYONBAGDETAILS">56x45x25 cm (22x18x10 in)</Text>
  </Description>
  <Description>
    <Text refs="SELECTSEAT">Free</Text>
  </Description>
  <Description>
    <Text refs="REBOOK">Permitted</Text>
  </Description>
  <Description>
    <Text refs="CHECKBAGDETAILS">23 kg (50 lb) / 158 cm (62 in)</Text>
  </Description>
  <Description>
    <Text refs="CHECKBAGS">2 priority bags</Text>
  </Description>
  <Description>
    <Text refs="NAMECHANGE">75 EUR</Text>
  </Description>
  <Description>
    <Text refs="CANCEL">Full refund</Text>
  </Description>
  <Description>
    <Text refs="LOUNGACC">No</Text>
  </Description>
  <Description>
    <Text refs="PLUSPOINT">150%</Text>
  </Description>
</Descriptions>
```

```
<DescriptionMetadatas>
  <DescriptionMetadata MetadataKey="BAGALLO">
    <Topic>Carry-on baggage max. 8kg/bag</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="CANCEL">
    <Topic>Cancellation (before / after departure)</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="CARRYONBAGDETAILS">
    <Topic>Carry-on baggage, maximum dimensions</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="CHECKBAGDETAILS">
    <Topic>Maximum weight / dimensions of a normal-size piece</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="CHECKBAGS">
    <Topic>Checked baggage max. 23kg/bag</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="LOUNGACC">
    <Topic>Lounge access</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="NAMECHANGE">
    <Topic>Name change</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="PERSITEM">
    <Topic>One personal item</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="PERSITEMDETAILS">
    <Topic>Maximum dimensions</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="PLUSPOINT">
    <Topic>Finnair Plus points</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="PRIOCHECK">
    <Topic>Priority check-in / boarding</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="PRIOSEC">
    <Topic>Priority security</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="REBOOK">
    <Topic>Changes (before / after departure)</Topic>
  </DescriptionMetadata>
  <DescriptionMetadata MetadataKey="SELECTSEAT">
    <Topic>Seat selection</Topic>
  </DescriptionMetadata>
</DescriptionMetadatas>
```



A interface for aggregators to actively send information to airline could help airline on dynamic pricing

Thank!

Contact: Jack Wei
Email: Jack.wei@ndchubu.com

