Recommendation API REST Specification

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TABLE OF CONTENTS

NOTICE 2
Table of Contents 3
List of Tables 4
Introduction 5
Mapping with SID ABE 6
Mapping with Business Process Framework (eTOM) 7
Difference between Recommendation API and other existing TMF APIs 8
SAMPLE USE CASES 9
RESOURCE MODEL 10
Managed Entity and Task Resource Models 10
Recommendation Resource 10
API OPERATION TEMPLATES 15
Get Recommendation 15
Acknowledgements 18
Release History 18
Contributors to Document 18

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LIST OF TABLES

N/A

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INTRODUCTION

The following document is the specification of the REST API for Recommendation. It includes the model definition as well as all available operations.

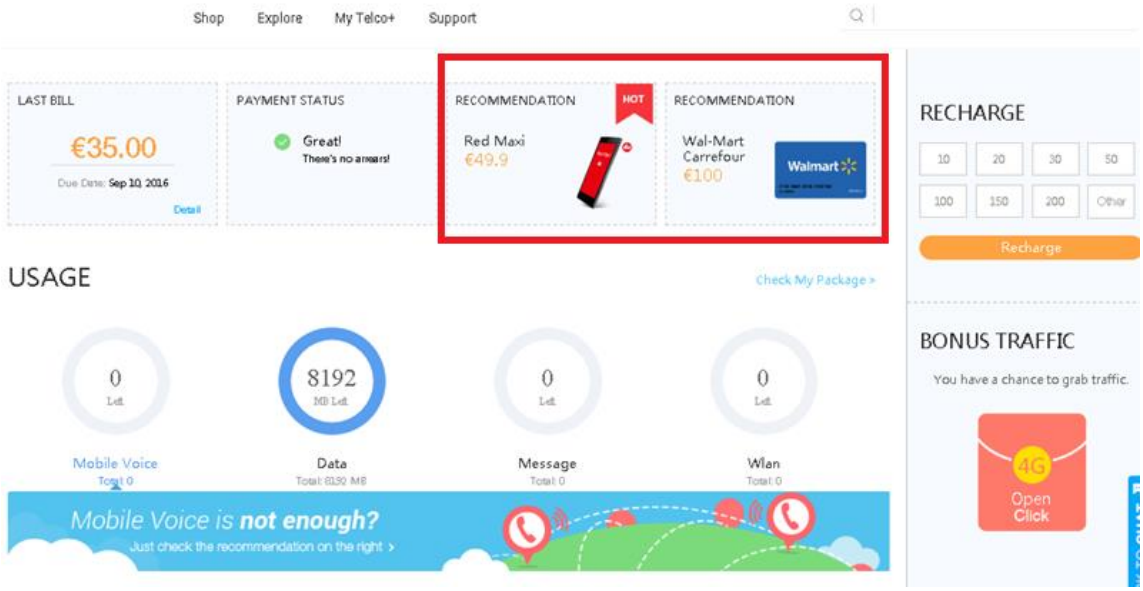
It provides a standardized mechanism for recommendation management such as creation, update, retrieval, deletion and notification of events.

Recommendation API manages the following data resources:

- **Recommendation**
    - Recommendation is a type of automated (typically, conditional) system action to determine which products offerings to be presented as up-sells, cross-sells, and related products to each customer segment based on customer and session specific information. The design-time offers and product recommendations may come from Marketing and Catalog. The run-time evaluation and presentment will be executed with contextual/session information. Normally, it supports the recommendation of the offer which is proper for the customer, provides Up-sell and cross-sell based on contextual and catalog rules.

Recommendation API is used to recommend offering quickly based on the history and real-time context of customer. It is a real-time and personalized recommendation API. It is usually provided by e-commerce or BSS, CRM system in omni-channel.

The typical example of recommendation is on the online e-commerce site.



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MAPPING WITH SID ABE

Recommendation is related to"*Product Domain::Product Offering ABE*" in TMF Information Framework (SID).

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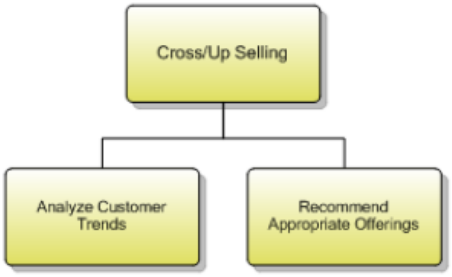
MAPPING WITH BUSINESS PROCESS FRAMEWORK (ETOM)

In Business Process Framework there is the description for promotion:

- Level 2 Process: 1.1.9 Selling
- Level 3 Process: 1.1.9.3 Cross/Up Selling
- Level 4 Process : 1.1.9.3.2 Recommend Appropriate Offerings

The description of “Recommend Appropriate Offerings” is to recommend the appropriate offering to the customer. It is the important approach to attract the customer and propel more revenue increase.



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DIFFERENCE BETWEEN RECOMMENDATION API AND OTHER EXISTING TMF APIS

Here the differences between Recommendation API and other existing published TMF APIs are explained to clarify why this separate API is not covered simply with those APIs.

✓ **Difference with Product Catalog API**

Recommendation and Product Offering in the Product Catalog has some similarities. The product offering is the object which is recommended to the customer.

Product Catalog API focuses on the configuration of product offering. When querying with Product Catalog API, all the existing offerings will be included in the query result. Instead, recommendation API only fetches the offerings which possibly cause the interest of the customer.

✓ **Difference with Product Offering Qualification API**

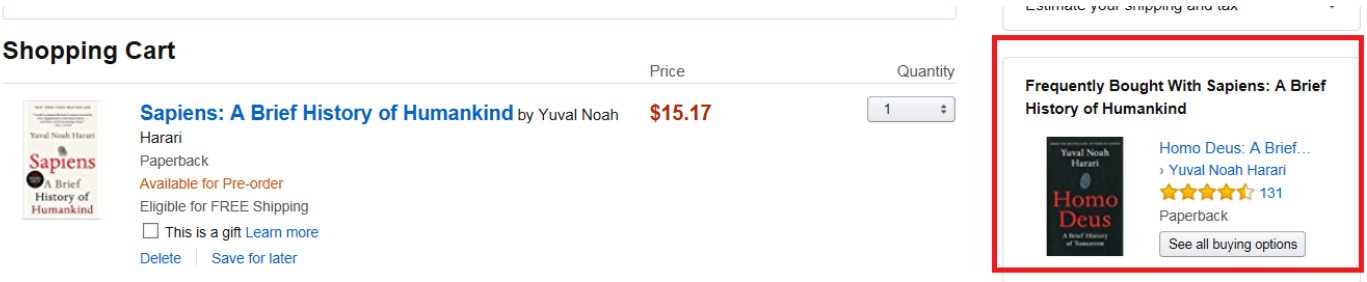
Product Offering Qualification acquires the validated and available product offering for the customer to purchase. These offerings are all the allowed options for the customer.

Recommendation API provides the most possibly-chosen offering for the customer. Such offerings are selected for the customer as the first and primary choice, not only the normal sellable objects.

✓ **Difference with Shopping Cart API**

The Shopping Cart API is a container to load the selected offerings for the customer to purchase. It does not replace the recommendation.

The recommendation often accompanies with the shopping cart. Based on the selected offerings in the cart, the recommended offerings are shown nearby. But the recommendation is not done by the shopping cart itself.



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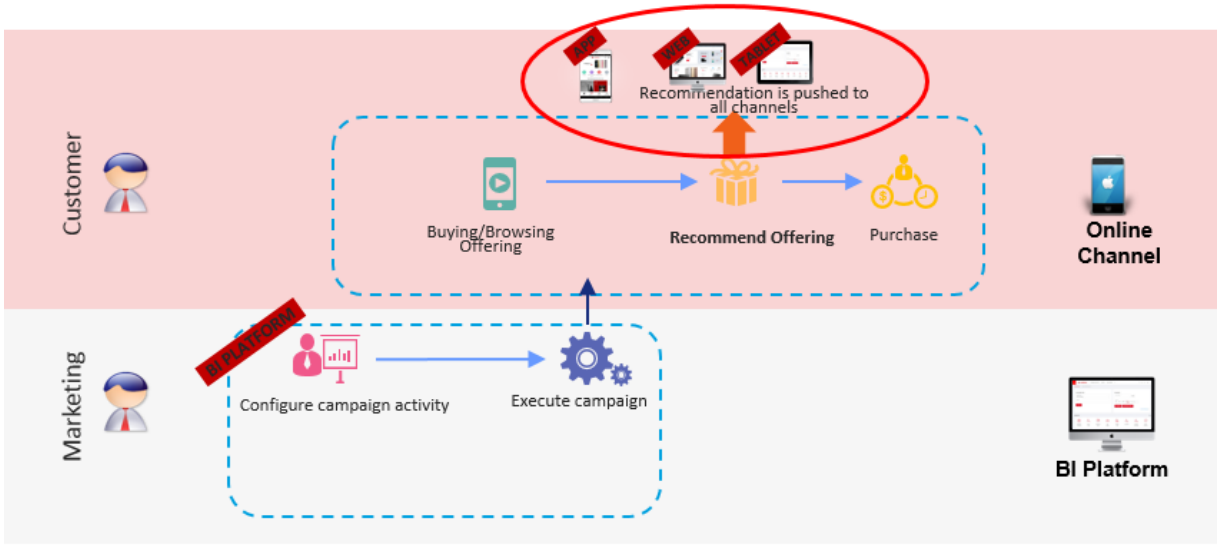
SAMPLE USE CASES

Examples of use cases using Recommendation API is as following



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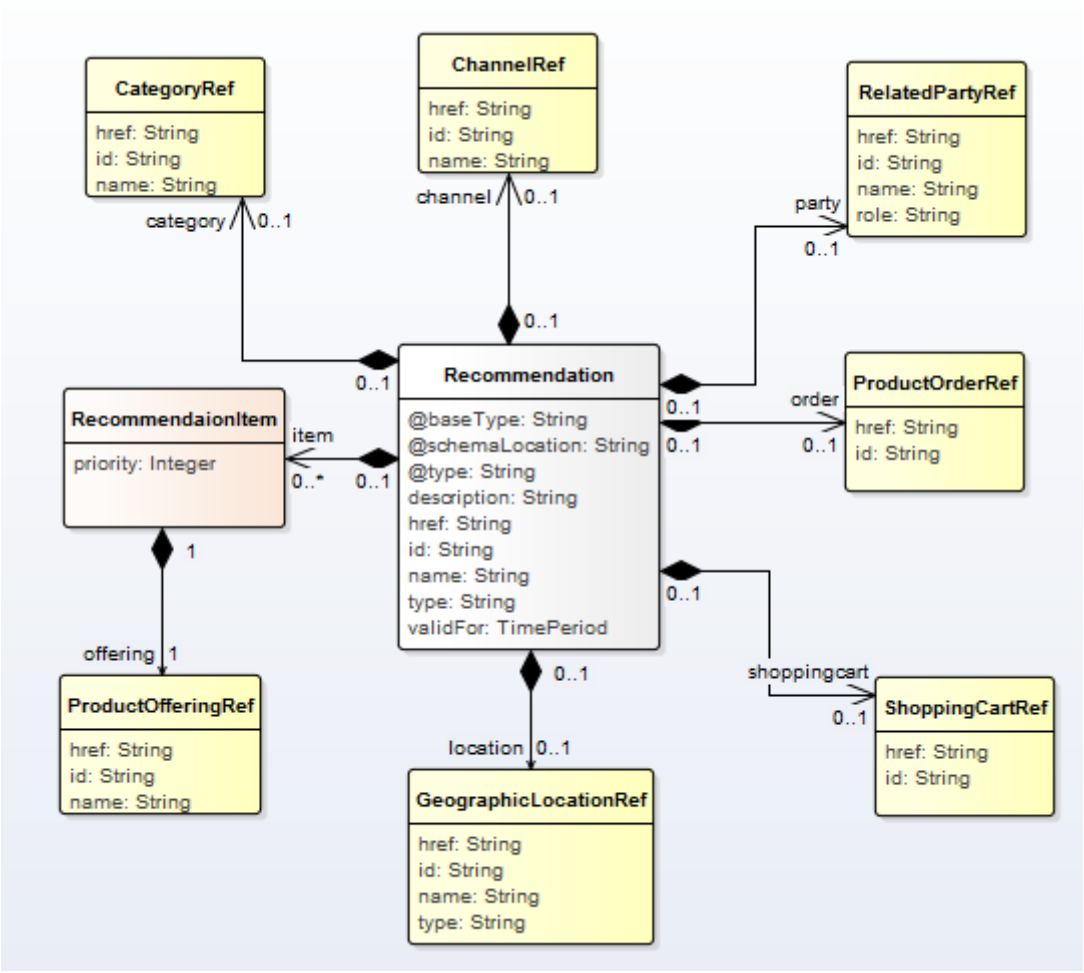
RECOMMENDATION RESOURCE

RECOMMENDATION RESOURCE MODEL:



FIELD DESCRIPTIONS

Recommendation Resouce

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Parameter	Data Type	Description
@type	String	It indicates the class type of the catalog.
@schemaLocation	String	It provides the link to the schema describing REST resource
@baseType	String	It indicates the base type of REST resource.
description	String	Description of recommendation
id	String	Unique identifier of recommendation
href	String	Hypertext Reference of the recommendation.
name	String	Name of recommendation
validFor	TimePeriod	The period in which the recommendation is valid.
type	String	Category of recommendation. The basic type is : 'AD': it means the recommendation is the advertisement for display 'OFFER': it means the recommended content is the offer entry page. By clicking it, the user can be forwarded to the details of the offering
recommendationItem		A list of recommendation items. Every item is a product offering and its priority.
priority	Integer	Priority level for applying this alteration among all the defined alterations .
productOffering		ProductOfferingRef (ProductOfferingRef)Recommended Product offering
id	String	Unique identifier of product offering
href	String	Hypertext Reference of the product offering.
name	String	Name of the product offering.
category		Category (CategoryRef), Different kinds of recommendation. For example, it can be used to describe different recommendation positions on the e-commerce web site.
id	String	Unique identifier of category
href	String	Hypertext Reference of the category.
name	String	Name of the category.

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Parameter	Data Type	Description
Channel		Channel(ChannelRef)The channel where the recommendation is used. May be online web, mobile app, social ,etc.
Id	String	Unique identifier of channel
href	String	Hypertext Reference of the channel.
name	String	Name of the channel.
ShoppingCart		ShoppingCart (ShoppingCartRef) . The shopping cart which the recommendation is related with.
Id	String	Unique identifier of shopping cart
href	String	Hypertext Reference of the shopping cart.
ProductOrder		ProductOrder (ProductOrder) .The product order which the recommendation is related with.
Id	String	Unique identifier of product order
href	String	Hypertext Reference of the product order.
GeographicLocation		GeographicLocation (GeographicLocationRef) The geographic location which the recommendation is related with.
Id	String	Unique identifier of geographic location
href	String	Hypertext Reference of the geographic location.
name	String	Name of the geographic location.
type	String	Type of the geographic location.
relatedParty		relatedParty (relatedPartyRef). The party which the recommendation is related with.
Id	String	Unique identifier of related party
href	String	Hypertext Reference of the related party.
name	String	Name of the related party.
role	String	Role of the related party.

RECOMMENDATION SAMPLE

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```
{

        “id”:”1001”,
        “href”:"http://serverlocation:port/recommendation/v1/recommendation/1001",
        “name”:” recommendation of the latest Apple iPhone”,
    "description": " recommendation of the latest Apple iPhone for the customer with high revenue contribution",
    "@type": "recommendation",
    "@schemaLocation":"http://serverlocation:port/recommendation/schema/recommendation.yml",
    "@baseType": "",
    “recommendationItem”: [
        {
        “priority”:1,
        “productOffering”:
            {
              "href": "https://host:port/productOffering/v1/productOfferings/6547",
              "id": "6547",
              "name": "phone1"
            }
        },
        {
        “priority”:2,
        “productOffering”:
            {
              "href": "https://host:port/productOffering/v1/productOfferings/6547",
              "id": "6542",
              "name": " phone2"
            }
        }
    ],
          "validFor": {
              "startDateTime": "2017-12-19 T04:00:00.0Z",
             "endDateTime": "2017-12-31 T20:42:23.0Z"
    },
    “type”: “OFFER”,
    "channel":
    {
    "id": "13",
        "href": "http://serverlocation:port/recommendation/v1/channel/13",
         “name”: “mobile app channel”
    },
    "relatedParty":
        {
          "id": "34",
```


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```
        “href": "http://serverlocation:port/partyManagement/v1/individual/34",
         “name”: “John Smith”,
                    "role": “”
}
         “geographicLocation”:{
        “id”:”334”
        }
}
```

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API OPERATION TEMPLATES

For every single of operation on the entities use the following templates and provide sample REST requests and responses.

Remember that the following Uniform Contract rules must be used:

Operation on Entities	Uniform API Operation	Description
Query Entities	GET Resource	GET must be used to retrieve a representation of a resource.

Filtering and attribute selection rules are described in the TMF REST Design Guidelines.

Get Recommendation

`GET /recommendation?fields=…&{filtering}`

Description:

- This operation is used to query recommendations by query conditions
- This operation is usually used by e-commerce client. When the client query recommendation, it will trigger the server to generate the recommendation quickly by Big Data analysis tech. or AI, Machine Learning tech. The server will response with the recommendation result.
- Attribute selection is enabled for all first level attributes.
- Attribute Filtering may be available depending on the compliance level supported by an implementation. For example:
  1.Get recommendions by relatedParty id and channel id
  GET /recommendation?relatedParty.id=VALUE&channel.id=VALUE
  2.Get recommendions by relatedParty id , channel id and shoppingcart id. Usually, we need to recommend specific offering when the customer change his shopping cart.
  GET /recommendation?relatedParty.id=VALUE&shoppingCart.id=120
  3.Get recommendions by relatedParty id , channel id and location id. Usually, we need to recommend specific offering when the customer's location changes.
  GET /recommendation?relatedParty.id=VALUE& geographicLocation.id=120

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Usage Samples

Here's an example of a request for retrieving Recommendation resources.

REQUEST

```
GET /recommendation?relatedParty.id=10023&channel.id=2053
Content-type: application/json
Accept: application/json
```

RESPONSE


```
{

 “id”:”1001”,
 “href”:"http://serverlocation:port/recommendation/v1/recommendation/1001",
“name”:” recommendation of the latest Apple iPhone”,
"description": " recommendation of the latest Apple iPhone for the customer with high revenue contribution",
"@type": "recommendation",
"@schemaLocation":"http://serverlocation:port/recommendation/schema/ recommendation.yml",
"@baseType": "",
“recommendationItem”: [
   {
   “priority”:1,
   “productOffering”:
         {
              “href”: “https://host:port/productOffering/v1/productOfferings/6547”,
              “id”: “6547”,
              “name”: “phone1”
         }
   },
   {
   “priority”:2,
   “productOffering”:
         {
              “href”: “https://host:port/productOffering/v1/productOfferings/6547”,
              “id”: “6542”,
              “name”: “ phone2”
         }
   }
],
“validFor”: {
      “startDateTime”: “2017-10-9 T04:00:00.0Z”,
      “endDateTime”: “2017-10-9 T20:42:23.0Z”
},
“type”: “OFFER”,
“channel”: {
        “id”: “2503”,
        “href”: “http://serverlocation:port/recommendation/v1/channel/13”,
        “name”: “mobile app channel”
},
“relatedParty”: {
        “id”: “10023”,
        “href”: “http://serverlocation:port/partyManagement/v1/individual/34”,
```


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```
        “name”: “John Smith”,
        “role”: “”
}

}
```


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ACKNOWLEDGEMENTS

RELEASE HISTORY

Release Number	Date	Release led by:	Description
Release 0.1	31/05/2017		First Release of Draft Version of the Document.
Release 0.12	12/07/2017		Update by Hongxia
1.0.0	9/10/2017		Address the comments from orange. , Merge the etiya's contribution.
1.0.1	30/10/2017		Address the comments from amdocs. ,

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