



Service Qualification REST SPECIFICATION

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TABLE OF CONTENTS

NOTICE.....	2
Table of Contents	3
List of Tables	4
Introduction	5
SAMPLE USE CASES	7
RESOURCE MODEL	9
Managed Entity and Task Resource Models.....	9
Service qualification Resource	9
Order feasibility check Resource	29
Event Models.....	37
API OPERATION TEMPLATES	38
GET /api/serviceQualificationRequest?{filter_representation}	39
POST /api/serviceQualificationRequest	42
GET /api/orderFeasibilityCheckRequest	52
POST /api/orderFeasibilityCheckRequest	55
API NOTIFICATION TEMPLATES.....	59
Release History	60

LIST OF TABLES

Table 1 Service Qualification field description

28

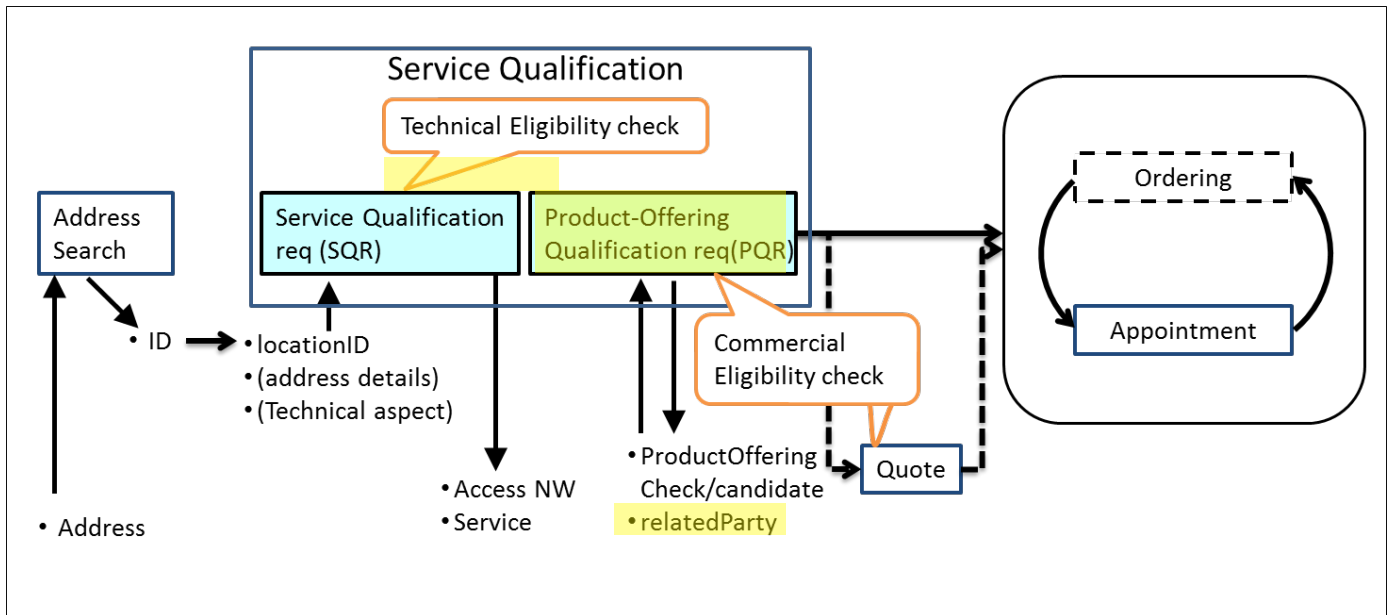
INTRODUCTION

Service Qualification API is One of Pre-Ordering Management API Family. Service Qualification API goal is to provide service availability at Customer location.

In the Open Digital Economy where multiple actors (SDPs, CSPs, ...) may be involved with the delivery of an end-to-end service, those actors need to collaborate and interact with the customer as needed.

ServiceQualification API operation checks are modeled as requests:

- serviceQualification request checks technical eligibility (Service Qualification Request resource),
- **productOfferingQualification** request checks commercial Eligibility include technical eligibility. (**productOfferingQualification** resource)



serviceQualificationRequest

- Check if a location (identified by address) is within the service footprint (i.e. within a serving area) and the type of service technology available at the location (i.e. access technology like Fiber, Wireless or Interim Satellite but also sensor data feed or utility service, HDTV availability), where detail response indicates technical parameters of service (e.g. bandwidth, data feed interval and accuracy, pipe diameter for water, etc).
- Intended for use cases where the “middle B” (retail ISP, reseller, etc) is not concerned about the product offering, but only about the service parameters.
- Allows for asynchronous responses via notification hub for checks that take longer.

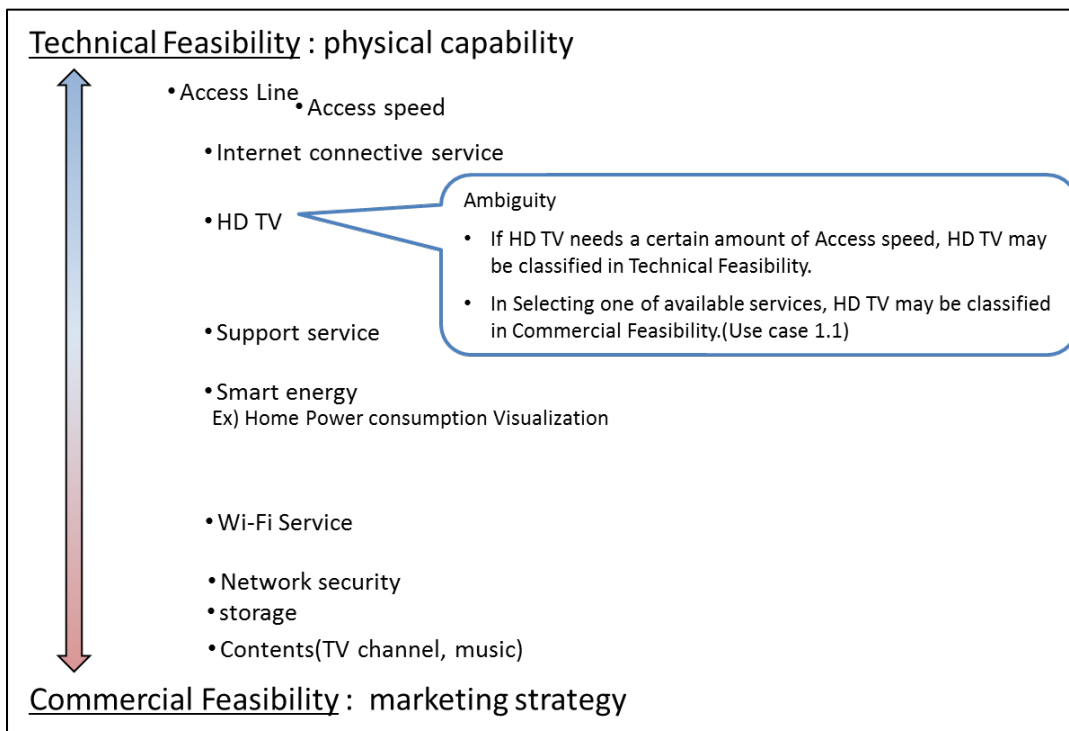
¹ middle B as in B2B2X business scenarios, cf TM Forum B2B2X Partnering Guidebook

- Should allow for serviceQualificationRequest for all types of services in a generic way, not only communication service access. If a telecom is sent a serviceQualificationRequest it will respond with the network access technology and parameters available at the location. If an electricity supplier is sent a request, it will respond with the options on electricity (volts?) available at the location, when a water utility is sent a request, it will respond with service parameters available at the location (pipe diameter, pressure,)

productOfferingQualification request

- Check if a given product offering can be delivered to a specific location (identified by address).
- Provide available product offering options if a specific product is not requested/given Synchronous responses only
- Is about product offering level eligibility, where the "middle B" (reseller, etc) is not primarily concerned about technical parameters, but about product offering availability at location.

Depending on the way to describe "Product ", it may be classified in either technical feasibility or commercial feasibility.



SAMPLE USE CASES

The following table maps out the use case.

UC	description
1	A 'new' customer is browsing operator internet services webpage and wish to see which offers he is eligible with his current address. The system retrieves the list of offers technically eligible with characteristics and configuration .
1.1	Configuration could be detailed and for example the customer is informed that he is eligible for ADSL, TV online but he cannot have both TV HD and Multi-Screen TV options (just one of these).
2	A 'new' customer is interested for FTTH service – he asks to SP sale representative about FTTH service at his current address. Thus system indicate he is eligible to FTTH and he will have a xx Mo/s speed for download and yy for upload.
2.2	Alternative: the address is ok for FTTH service but from a strictly technical point of view the operator FTTH center box have not enough space to plug a new connection. The Sale representative is able to inform the customer that he will be eligible to FTTH in 8 week
3	a customer wishes to enjoy HD TV . He asks to SP sale representative. He is eligible but he has to change his access offer.
3.1	Alternative: Access is ok but system checks that he is currently using an outdated TV decoder and he has to upgrade his TV box to enjoy HD.
4	A customer asks for TV on internet . An eligibility check is triggered and should check not only the TV channel provided by the SP but also the additionally TV channels availability at the customer address (even if they not directly provided by the SP).
5	A customer is moving to a new address – a check must be done at this new address and the SP sale representative is able to inform the customer if: <ul style="list-style-type: none">• he will be able to keep current offer at his new address• he should downgrade his services because current ones are not technically feasible at the new address• he can keep but also he is eligible to an upgrade and benefit for example to a FTTH broadband at his new address.
6	A TV channel provider wants to sell a set of channel for a customer. He will ask for the customer broadband company [API provider] and an access id (email address for example). He will use this

	information with this POST /serviceQualificationRequest api to be able to retrieve information on customer access capabilities (and check if the customer will be able to get his service from the service point).
7	<p>A MVNO/other provider who use provider network will call this api to be able to check capabilities for one prospect. With this api he will have all technical information and he should have to apply his own commercial rules to make a proposal to this customer.</p> <p>This UC could be a mandatory one for contractual reason where network is still owned by legacy Telco Company but they have to open it for competitors.</p>
8	this api could be used in internal channel to be able to check technical capabilities without any commercial filter. It could be useful in some customer support UC.
9	<p>customer wishes to enjoy different products over multiple accesses. For example: HD TV, internet by fiber and phone service on ADSL. Customer is interested on the commercial offering and not on technical aspects so she calls to a sales representative for that.</p> <p>a customer wishes to enjoy HD TV and internet by Fiber and to use call by ADSL. He asks to SP sale representative</p>

RESOURCE MODEL

Managed Entity and Task Resource Models

Service Qualification API has 2 Resources (subclassing Business Interaction).

Service Qualification Request resource for knowing the allowed services based on specific criterions such as

- [IN] location
- [OUT] Access NW
- [OUT] Service

productOfferingQualification resource for knowing the product offering based on specific criterions such as

- [IN/OUT]ProductOffering
- [IN] location (optional)
- [IN]related party (cf. party id, channel)

SERVICE QUALIFICATION RESOURCE

4 Example of the JSON representation of Service Qualification:

- 1) Address id for location info
- 2) Address discription for location info
- 3) Geocode for location info
- 4) Public-key for location info

Service provider execute service qualification request with location information to get technical eligibility that is network access speed, available service list.

- 1) Address id for location info

```
{
// Service Qualification Request
  "serviceQualificationRequest" : {
    "id" : "",
    "eligibilityDate" : "20160201 10:00",

// 1 of Address, Address description, geoCode and publicKey should be provided
    "address" : {
      "id" : "12345678",
      "href" : "https://www.google.ca/maps/dir/" + "google+map+montreal+place+ville+marie/@45.5014452,-73.6393962,12z/data=!3m1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-73.5693564!2d45.5014666",
    },
    "serviceSpecification" : [
      {
        "id": "3333"
      }
    ],
    "serviceCharacteristic" : [
      {
        "id": "downstreamspeed",
        "value" : "6MBPS"
      }
    ],
    "serviceCategory" : [
      {
        "id": "TVservice"
      }
    ],
    "provideAlternative" : "No",

```

```
    "provideOnlyEligible" : "Yes"
  },

  //
  // Service Qualification Response
  //
  "serviceQualificationResponse" : {
    "id" : "42",
    "eligibilityDate" : "20160201 10:00",
    // array of physical resource or Logical resource (e.g physicalTerminationPoint) is needed for multiple
    // access nw representation
    "physicalTerminationPoint" : [
      {
        "accessType" : "ADSL",
      },
      {
        "accessType" : "Fiber",
      }
    ],
    "address" : {
      "id" : "12345678",
      "href" : "https://www.google.ca/maps/dir/" + "google+map+montreal+place+ville+marie/@45.5014452,-73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-73.5693564!2d45.5014666",
    },

    "serviceSpecification" : [
      {
        "id" : "2222",
        "href" : "https://serviceSpecification/ADSL",
      }
    ]
  }
}
```

```
"serviceCategoryId" : "Internet",
"ServiceSpecificationCharacteristic" : [
  {
    "id" : "2211",
    "name" : "upstreamSpeed",
    "valuefrom" : "10KBPS",
    "valueto" : "1MBPS"
  },
  {
    "id" : "2212",
    "name" : "downstreamSpeed",
    "valuefrom" : "100KBPS",
    "valueto" : "6MBPS"
  }
],
"serviceQualification" : {
  "qualificationResult" : "available"
}
},
{
  "id" : "3333",
  "href" : "https://serviceSpecification/TVservice",
  "serviceCategoryId" : "TV",
  "serviceQualification" : {
    "qualificationResult" : "unavailable",
    "comment" : "less than 5MBPS bandwidth",
    "qualificationResultDate" : "2016/02/01"
  }
}
```

```
    ],  
    // Alternative service which be able to satisfy the request.  
    "Alternative" : [  
      {  
        "serviceSpecificationId" : "Fiber",  
        "attribute" : [  
          {  
            "id" : "2212",  
            "name" : "upstreamSpeed",  
            "value" : "1MBPS"  
          },  
          {  
            "id" : "2212",  
            "name" : "downstreamSpeed",  
            "value" : "10MBPS"  
          }  
        ]  
      }  
    ]  
  }  
}
```

2) Address discription for location info

```
{  
  // Service Qualification Request  
  "serviceQualificationRequest" : {  
    "id" : "",  
    "eligibilityDate" : "20160201 10:00",  
  }  
}
```

```
// 1 of Address, Address description, geoCode and publicKey should be provided
```

```
"addressDescription" : {
```

```
  "streetNr" : "1",
```

```
  "streetName" : "ville Marie",
```

```
  "city" : "montreal",
```

```
  "stateOrProvince" : "Quebec",
```

```
  "country" : "Canada ",
```

```
},
```

```
"serviceSpecification" : [
```

```
{
```

```
  "id"."3333"
```

```
}
```

```
],
```

```
"serviceCharacteristic" : [
```

```
{
```

```
  "id"."downstreamspeed",
```

```
  "value" : "6MBPS"
```

```
}
```

```
],
```

```
"serviceCategory" : [
```

```
{
```

```
  "id"."TVservice"
```

```
}
```

```
],
```

```
"provideAlternative" : "No",
```

```
"provideOnlyEligible" : "Yes"
```

```
},  
  
//  
// Service Qualification Response  
//  
"serviceQualificationResponse" : {  
  "id" : "42",  
  "eligibilityDate" : "20160201 10:00",  
  // array of physical resource or Logical resource (e.g physicalTerminationPoint) is needed for multiple access  
  // nw representation  
  "physicalTerminationPoint" : [  
    {  
      "accessType" : "ADSL",  
    },  
    {  
      "accessType" : "Fiber",  
    }  
  ],  
  "address" : {  
    "id" : "12345678",  
    "href" : "https://www.google.ca/maps/dir//google+map+montreal+place+ville+marie/@45.5014452,-  
73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-  
73.5693564!2d45.5014666",  
  },  
  "addressDescription" : {  
    "streetNr" : "1",  
    "streetName" : "ville Marie",  
    "city" : "montreal",  
    "stateOrProvince" : "Quebec",
```

```
    "country" : "Canada ",
  },
  "serviceSpecification" : [
  {
    "id" : "2222",
    "href" : "https://serviceSpecification/ADSL",
    "serviceCategoryId" : "Internet",
    "ServiceSpecificationCharacteristic" : [
    {
      "id" : "2211",
      "name" : "upstreamSpeed",
      "valuefrom" : "10KBPS",
      "valueto" : "1MBPS"
    },
    {
      "id" : "2212",
      "name" : "downstreamSpeed",
      "valuefrom" : "100KBPS",
      "valueto" : "6MBPS"
    }
  ],
    "serviceQualification" : {
      "qualificationResult" : "available"
    }
  },
  {
    "id" : "3333",
```



```
"href": "https://serviceSpecification/TVservice",
"serviceCategoryId": "TV",
"serviceQualification": {
  "qualificationResult": "unavailable",
  "comment": "less than 5MBPS bandwidth",
  "qualificationResultDate": "2016/02/01"
}
},
],
// Alternative service which be able to satisfy the request.
"Alternative": [
  {
    "serviceSpecificationId": "Fiber",
    "attribute": [
      {
        "id": "2211",
        "name": "upstreamSpeed",
        "value": "1MBPS"
      },
      {
        "id": "2212",
        "name": "downstreamSpeed",
        "value": "10MBPS"
      }
    ]
  }
]
]
```

```
}  
}
```

3) Geocode for location info

```
{  
  // Service Qualification Request  
  "serviceQualificationRequest" : {  
    "id" : "",  
    "eligibilityDate" : "20160201 10:00",  
  
    // 1 of Address, Address description, geoCode and publicKey should be provided  
    "geocode" : {  
      "latitude" : "73.6393962",  
      "longitude" : "45.5014452",  
    },  
    "serviceSpecification" : [  
      {  
        "id"."3333"  
      }  
    ],  
    "serviceCharacteristic" : [  
      {  
        "id"."downstreamspeed",  
        "value" : "6MBPS"  
      }  
    ],  
  },  
}
```

```
"serviceCategory" : [  
  {  
    "id": "TVservice"  
  }  
],  
"provideAlternative" : "No",  
"provideOnlyEligible" : "Yes"  
},  
  
//  
// Service Qualification Response  
//  
"serviceQualificationResponse" : {  
  "id" : "42",  
  "eligibilityDate" : "20160201 10:00",  
  
  // array of physical resource or Logical resource (e.g physicalTerminationPoint) is needed for multiple access  
  // nw representation  
  "physicalTerminationPoint" : [  
    {  
      "accessType" : "ADSL",  
    },  
    {  
      "accessType" : "Fiber",  
    }  
  ],  
  "address" : {  
    "id" : "12345678",  
    "href" : "https://www.google.ca/maps/dir//google+map+montreal+place+ville+marie/@45.5014452,-  
73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-
```

```
73.5693564!2d45.5014666",
},
"geocode" : {
  "latitude" : "73.6393962",
  "longitude" : "45.5014452",
},
"serviceSpecification" : [
{
  "id" : "2222",
  "href" : "https://serviceSpecification/ADSL",
  "serviceCategoryId" : "Internet",
  "ServiceSpecificationCharacteristic" : [
{
  "id" : "2211",
  "name" : "upstreamSpeed",
  "valuefrom" : "10KBPS",
  "valueto" : "1MBPS"
},
{
  "id" : "2212",
  "name" : "downstreamSpeed",
  "valuefrom" : "100KBPS",
  "valueto" : "6MBPS"
}
],
"serviceQualification" : {
  "qualificationResult" : "available"
}
}
```

```
    },
    {
      "id" : "3333",
      "href" : "https://serviceSpecification/TVservice",
      "serviceCategoryId" : "TV",
      "serviceQualification" : {
        "qualificationResult" : "unavailable",
        "comment" : "less than 5MBPS bandwidth",
        "qualificationResultDate" : "2016/02/01"
      }
    }
  ],
  // Alternative service which be able to satisfy the request.
  "Alternative" : [
    {
      "serviceSpecificationId" : "Fiber",
      "attribute" : [
        {
          "id" : "2211",
          "name" : "upstreamSpeed",
          "value" : "10MBPS"
        },
        {
          "id" : "2212",
          "name" : "downstreamSpeed",
          "value" : "10MBPS"
        }
      ]
    }
  ],
```

```
    ]
  }
]
}
}
```

4) Public-key for location info

```
{
  // Service Qualification Request
  "serviceQualificationRequest" : {
    "id" : "",
    "eligibilityDate" : "20160201 10:00",

    // 1 of Address, Address description, geoCode and publicKey should be provided
    "publicKey" : "public-Key_00000000",
    "serviceSpecification" : [
      {
        "id": "3333"
      }
    ],
    "serviceCharacteristic" : [
      {
        "id": "downstreamspeed",
        "value" : "6MBPS"
      }
    ]
  }
}
```

```
}
],
"serviceCategory" : [
{
  "id": "TVservice"
}
],
"provideAlternative" : "No",
"provideOnlyEligible" : "Yes"
},

//
// Service Qualification Response
//
"serviceQualificationResponse" : {
  "id" : "42",
  "eligibilityDate" : "20160201 10:00",
  // array of physical resource or Logical resource (e.g physicalTerminationPoint) is needed for multiple
  // access nw representation
  "physicalTerminationPoint" : [
    {
      "accessType" : "ADSL",
    },
    {
      "accessType" : "Fiber",
    }
  ],
  "publicKey" : "public-Key_00000000",
}
```

```
"serviceSpecification" : [  
  {  
    "id" : "2222",  
    "href": "https://serviceSpecification/ADSL",  
    "serviceCategoryId" : "Internet",  
    "ServiceSpecificationCharacteristic" : [  
      {  
        "id" : "2211",  
        "name" : "upstreamSpeed",  
        "valuefrom" : "10KBPS",  
        "valueto" : "1MBPS"  
      },  
      {  
        "id" : "2212",  
        "name" : "downstreamSpeed",  
        "valuefrom" : "100KBPS",  
        "valueto" : "6MBPS"  
      }  
    ],  
    "serviceQualification" : {  
      "qualificationResult" : "available"  
    }  
  },  
  {  
    "id" : "3333",  
    "href": "https://serviceSpecification/TVservice",  
    "serviceCategoryId" : "TV",
```



```
"serviceQualification" : {
  "qualificationResult" : "unavailable",
  "comment" : "less than 5MBPS bandwidth",
  "qualificationResultDate" : "2016/02/01"
}
},
],
// Alternative service which be able to satisfy the request.
"Alternative" : [
  {
    "serviceSpecificationId" : "Fiber",
    "attribute" : [
      {
        "id" : "2211",
        "name" : "upstreamSpeed",
        "value" : "11MBPS"
      },
      {
        "id" : "2212",
        "name" : "downstreamSpeed",
        "value" : "10MBPS"
      }
    ]
  }
]
}
]
```

For each resource in your model fill the following table.

Fields Description

ServiceQualificationRequest

Field	Description
Id	Unique identifier for Interaction.
eligibilityDate	The Date requested eligibility
Address	
Type	Unique identifier for Place
Id	Unique identifier for Place
Href	Reference of a place (for instance in google map)
address description	Address description
streetNr	
streetNrSuffix	
streetName	
streetType	
streetSuffix	
City	
locality	
postcode	
stateOrProvince	
country	
geoCode	Geographic code
latitude	Latitude
Longitude	Longitude
geographicDatum	

Field	Description
publicKey	a landline number or an internet access id
serviceSpecification	Requested service specification
Id	Unique identifier for serviceSpecification
serviceCharacteristic	
Id	Servicecharacteristic for requested service
Value	serviceCharacteristic value for requested service
serviceCategory	
Id	
provideAlternative	if this flag I set to Yes - the API will retrieve closest value available for this same service
provideOnlyEligible	used to restrict API response to only available services. If this flag is set to No the API will provide both positive and negative eligibility results.

ServiceQualification Response

Field	Description
Id	Unique identifier for Interaction.
eligibilityDate	
address	
type	Unique identifier for Place
Id	Unique identifier for Place
href	Reference of a place (for instance in google map)

Field	Description
publicKey	a landline number or an internet access id
physicalResource	Array of physical resource for multiple access NW
physicalTerminationPoint	Logical resource for multiple access NW
accessType	Access Technology Type: ADSL, VDSL, fiber
serviceSpecification	Service specification for qualification service
id	
serviceCategoryId	Category id for requested service
serviceSpecificationCharacteristic	Characteristic for requested service
id	
value	
serviceQualification	services with a specific eligibility check will be listed there with technical eligibility result
qualificationResult	Technical eligibility result: service availability status which explain below
comment	Comment for technical eligibility result
qualificationResultDate	qualification judgement date
alternative	To retrieve closest value available for this same service, if the provideAlternative flag in request set to Yes.
serviceSpecificationId	Alternative service specification for alternative service
attribute	Alternative service specification
id	
value	

Table 1 Service Qualification field description

Serviceability status may be represented the following table.

Serviceability status	Serviceable		Not serviceable	
	existing	shortfall	planned	Not planned
Image	<p>— : available access line - - - : planned to be serviced access line with expansion or service order</p>			
outline	Serviceable, drop and NTD in place.	Serviceable, no drop or NTD in place.	Planned to be serviced in the future (boundary status isn't 'In Service' yet)	Not plan to be serviceable this area.

serviceable-shortfall is include updating access NW.

substatus are captured via notation

i.e serviceable.existing etc...

In the case that the service provider or broker responding to the request already knows about an upcoming change in the serviceability status, it is intended that the response is sent as a collection of the about results, listing both the current and the future valid response with its state and a matching eligibility date.

PRODUCT-OFFERING QUALIFICATION RESOURCE

Example of the JSON representation of Product-Offering Qualification:

Service provider execute Product-Offering Qualification request to get the customer location Feasibility include Commercial and Technical eligibility.

```
{
  // Product-Offering Qualification Request
  "productOfferingQualificationRequest" : {
    "partyId" : "service_provider_0001",
    "channel" : "web store",
    "productInventoryId" : "ADSL_locate_No",
    // location info is optional in product-offering qualification
    "address" : {
      "id" : "12345678",
    },
    "productOfferingSpecification" : [
    {
      "id":"3333"
    }
  ],
    "productOfferingCategory" : [
    {
      "id":"TVservice with Internet Play"
    }
  ],
    "productCharacteristic" : [
    {
      "id":"downstreamspeed",
      "value" : "6MBPS"
    }
  ],
    "provideOnlyAvailable" : "Yes",
```

```
    "provideUnavailabilityReason" : "No"
  },
  //
  // Product-Offering Qualification Response
  //
  "productOfferingQualificationResponse" : {
    "productOfferingSpecification" : [
      {
        "id" : "3333",
        "productOfferingCategoryId" : "TV service with internet play",
        "productCharacteristic" : [
          {
            "id" : "upstreamspeed",
            "value" : "500 Kbps"
          },
          {
            "id" : "downstreamspeed",
            "value" : "4 Mbps"
          }
        ]
      }
    ],
    "orderFeasibilityCheck" : {
      "eligibilityResult" : "unavailability"
      "eligibilityUnavailabilityReason" : [
        {
          "code" : "UNAVAILABLE-300",
          "label" : "need more bandwidth"
        }
      ]
    }
  }
},
```

```
    ]
  }
}
]
}
}
```

For each resource in your model fill the following table.

Fields Description

ProductOfferingQualificationRequest

Field	Description
-------	-------------

Field	Description
partyId	Unique identifier for party
channel	Channel
productInventoryId	Product Inventory ID for commercial eligibility
address	
id	Unique identifier for Place
href	Reference of a place (for instance in google map)
address description	Address description
streetNr	
streetNrSuffix	
streetName	
streetType	
streetSuffix	
city	
locality	
postcode	
stateOrProvince	
country	
geoCode	Geographic code
latitude	Latitude
Longitude	Longitude
geographicDatum	

Field	Description
publicKey	a landline number or an internet access id
productOfferingSpecification	Requested product-offering specification
id	
productOfferingCategory	Requested product-offering category
id	
productOfferingCharacteristic	A characteristic quality or distinctive feature of a product-Offering
id	
value	
provideOnlyAvailable	If this flag is set to No the API will provide both positive and negative availability results.
provideUnavailabilityReason	add in the API the rationale for not-authorized productOffering. The rationales for non-authorized are described in the eligibilityUnavailabilityReason structure in the response.

ProductOfferingQualification Response

Field	Description
productOfferingSpecification	
id	ID of the top level productOffering
productOfferingCategoryId	Unique identifier for productOfferingCategory
productCharacteristic	
id	Unique identifier for productCharacteristic

Field	Description
value	The value for productCharacteristic in this productOffering
orderFeasibilityCheck	Commercial and Technical eligibility result for this offer:
eligibilityResult	Eligibility result for this offer
eligibilityUnavailabilityReason	reason for eligibility result if the offer was unavailable
code	Unavailable reason code
label	Unavailable reason label

For each resource in the API provide a UML model:

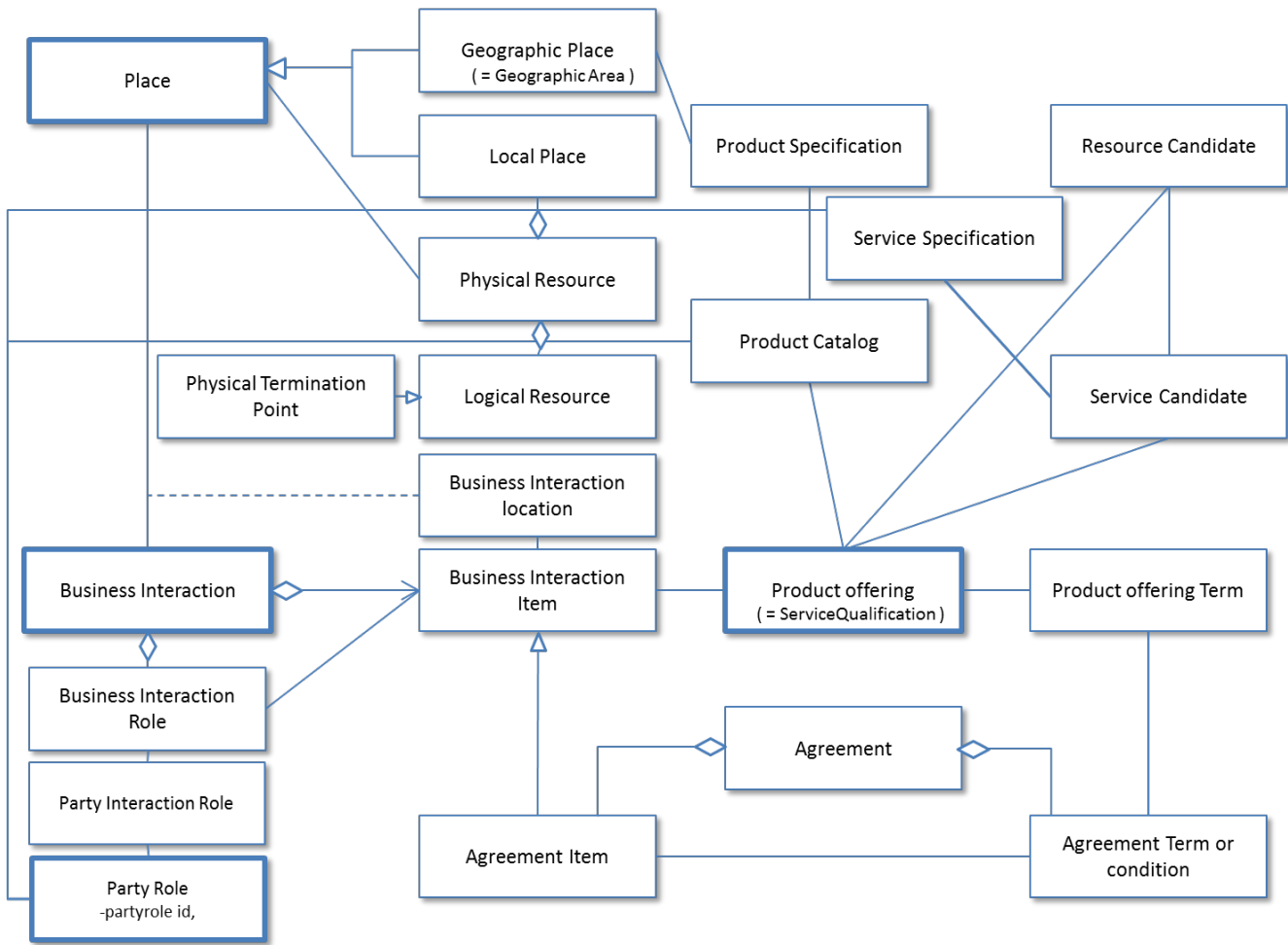


Figure 1 – Service Qualification resource model

Event Models

Service Qualification API has no notification event.

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.
Create Entity	POST Resource	POST must be used to create a new resource
Partial Update of an Entity	PATCH Resource	PATCH must be used to partially update a resource
Complete Update of an Entity	PUT Resource	PUT must be used to completely update a resource identified by its resource URI
Remove an Entity	DELETE Resource	DELETE must be used to remove a resource
Execute an Action on an Entity	POST on TASK Resource	POST must be used to execute Task Resources
Other Request Methods	POST on TASK Resource	GET and POST must not be used to tunnel other request methods.

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

Notifications are also described in a subsequent section.

GET /api/serviceQualificationRequest?{filter_representation}

Description :

This operation is used to provide technical Eligibility that is what service is available or when the service is available.

Partner used this API to notice service availability Partner's customer.

GET operation use if location id is created at other API/system.

Attribute name	Mandatory	Default	Rule
Id	N	Blank	
eligibilityDate	N	Today	
Address	N		Address info need one from any address representaions

Address description	N		Address info need one from any address representatians
geoCode	N		Address info need one from any address representatians
publicKey	N		Address info need one from any address representatians
serviceSpecification	N		
serviceCharacteristic	N		
serviceCategory	N		
provideAlternative	N	"No"	if this flag I set to Yes - the API will retrieve closest value available for this same service
provideOnlyEligible	N	"Yes"	If this flag is set to No the API will provide both positive and negative eligibility results

Behavior :

- Return status codes
 - 200 OK – the request was successful
 - 400 Bad Request – error, for example to cover these functional error cases:
 - Location is not exist

Use case : Get access network service availability from location id

REQUEST

GET /api/serviceQualificationRequest?place.id=12345678;
Accept: application/json

RESPONSE

200

Content-Type: application/json

```
{
  "id" : "42",
  "eligibilityDate" : "20160201 10:00",
  "physicalTerminationPoint" : [
    {
      "accessType" : "ADSL",
    },
    {
      "accessType" : "Fiber",
    }
  ],
  "address" : {
    "id" : "12345678",
    "href" : "https://www.google.ca/maps/dir//google+map+montreal+place+ville+marie/@45.5014452,-73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-73.5693564!2d45.5014666",
  },
  "serviceSpecification" : [
    {
      "id" : "2222",
      "href" : "https://serviceSpecification/ADSL",
      "serviceCategoryId" : "Internet",
      "ServiceSpecificationCharacteristic" : [
        {
          "name" : "uploadSpeed",
          "valuefrom" : "10KBPS",
          "valueto" : "1MBPS"
        }
      ],
    },
  ],
}
```

```
{
  {
    "name" : "downloadSpeed"
    "valuefrom" : "100KBPS",
    "valueto" : "6MBPS"
  }
],
  "serviceQualification" : {
    "qualificationResult" : "available"
  }
},
{
  "id" : "3333",
  "href" : "https://serviceSpecification/TVservice",
  "serviceCategoryId" : "TV",
  "serviceQualification" : {
    "qualificationResult" : "available"
  }
}
]
```

POST /api/serviceQualificationRequest

Description :

This operation is used to provide technical Eligibility that is what service is available or when the service is available.

Partner used this API to notice service availability Partner's customer.

POST operation use if location id is create at this operation.

Attribute name	Mandatory	Default	Rule
Id	N	Blank	
eligibilityDate	N	Today	
Address	N		Address info need one from any address representaions
Address description	N		Address info need one from any address representaions
geoCode	N		Address info need one from any address representaions
publicKey	N		Address info need one from any address representaions
serviceSpecification	N		
serviceCharacteristic	N		
serviceCategory	N		
provideAlternative	N	"No"	if this flag I set to Yes - the API will retrieve closest value available for this same service
provideOnlyEligible	N	"Yes"	If this flag is set to No the API will provide both positive and negative eligibility results

Behavior :

- Return status codes
 - 200 OK – the request was successful
 - 400 Bad Request – error, for example to cover these functional error cases:
 - Location is not exist

Use case :

3 Examples for a Specific Service

- with Location
- with Location and Physical Characteristics
- with Service Specification and Characteristics

We assume requests are synchronous (i.e. responses are sent synchronously)

1) Which services can be provided at a specific location?

REQUEST
POST /api/serviceQualificationRequest Accept: application/json { "address" : { "href" : "https://www.google.ca/maps/dir/"google+map+montreal+place+ville+marie/@45.5014452,-73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-73.5693564!2d45.5014666" } }
RESPONSE

200

Content-Type: application/json

{

"id" : "42",

"eligibilityDate" : "20160201 10:00",

"physicapTerminationPoint" : [

{

"accessType" : "ADSL",

},

{

"accessType" : "Fiber",

}

],

"address" : {

"id" : "12345678",

"href" : "https://www.google.ca/maps/dir//google+map+montreal+place+ville+marie/@45.5014452,-73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-73.5693564!2d45.5014666",

},

"serviceSpecification" : [

{

"id" : "2222",

"href" : "https://serviceSpecification/ADSL",

"serviceCategoryId" : "Internet",

"ServiceSpecificationCharacteristic" : [

```
{
  "name": "uploadSpeed",
  "valuefrom": "10KBPS",
  "valueto": "1MBPS"
},
{
  "name": "downloadSpeed",
  "valuefrom": "100KBPS",
  "valueto": "6MBPS"
}
],
"serviceQualification": {
  "qualificationResult": "available"
}
},
{
  "id": "3333",
  "href": "//serviceSpecification/TVservice",
  "serviceCategoryId": "TV",
  "serviceQualification": {
    "qualificationResult": "available"
  }
}
]
}
```

2) can the access NW be provided at a specific location

REQUEST
<pre>POST /api/serviceQualificationRequest Accept: application/json { "address" : { "href" : "https://www.google.ca/maps/dir/"google+map+montreal+place+ville+marie/@45.5014452,- 73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d- 73.5693564!2d45.5014666" }, "serviceQualificationItem" : ["serviceSpecification" { "id" : "2233", "href": "http://serviceSpecification/FiberAccess" }, "serviceCharacteristic" { "id" : "downstreamspeed", "value" : "10 Mbps" }] }</pre>
RESPONSE

200

Content-Type: application/json

```
{
  "id" : "42",
  "eligibilityDate" : "20160201 10:00",
  "physicapTerminationPoint" : [
    {
      "accessType" : "ADSL"
    },
    {
      "accessType" : "Fiber"
    }
  ],
  "address" : {
    "id" : "12345678",
    "href" : "https://www.google.ca/maps/dir/" + "google+map+montreal+place+ville+marie/@45.5014452,-73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-73.5693564!2d45.5014666",
  },
  "serviceSpecification" : [
    {
      "id" : "2233",
      "href" : "https://serviceSpecification/FiberAccess",
      "serviceCategoryId" : "Internet",
      "ServiceSpecificationCharacteristic" : [
        {
          "name" : "uploadSpeed",
          "valuefrom" : "100 KBPS",
          "valueto" : "1 GBPS"
        },
        {
          "name" : "downloadSpeed",
          "valuefrom" : "1 MBPS",
          "valueto" : "5 GBPS"
        }
      ]
    }
  ]
}
```



```
    }  
  ],  
  "serviceQualification" : {  
    "qualificationResult" : "available-shortfall"  
  }  
}  
]  
}
```

3) can the specific service be provided at a specific location

REQUEST

POST /api/serviceQualificationRequest

Accept: application/json

```
{
  "address" : {
    "href" : "https://www.google.ca/maps/dir//google+map+montreal+place+ville+marie/@45.5014452,-73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-73.5693564!2d45.5014666"
  },
  "serviceCharacteristic" : [
    {
      "name" : "upstreamSpeed",
      "Value" : "1 Mbps",
    },
    {
      "name" : "downstreamSpeed",
      "value" : "100Mbps"
    },
  ]
}
```

RESPONSE

200

Content-Type: application/json

```
{
  "id" : "42",
  "eligibilityDate" : "20160201 10:00",
  "physicapTerminationPoint" : [
    {
      "accessType" : "ADSL"
    },
    {
      "accessType" : "Fiber"
    }
  ],
}
```

```
"address" : {
  "id" : "12345678",
  "href" : "https://www.google.ca/maps/dir/"google+map+montreal+place+ville+marie/@45.5014452,-73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-73.5693564!2d45.5014666",
},
"serviceSpecification" : [
  {
    "id" : "2222",
    "href" : "https://serviceSpecification/ADSL",
    "serviceCategoryId" : "Internet",
    "ServiceSpecificationCharacteristic" : [
      {
        "name" : "uploadSpeed",
        "valuefrom" : "10KBPS",
        "valueto" : "1MBPS"
      },
      {
        "name" : "downloadSpeed",
        "valuefrom" : "100KBPS",
        "valueto" : "6MBPS"
      }
    ],
    "serviceQualification" : {
      "qualificationResult" : "available"
    }
  },
  {
    "id" : "3333",
    "href" : "https://serviceSpecification/TVservice",
    "serviceCategoryId" : "TV",
    "serviceQualification" : {
      "qualificationResult" : "available"
    }
  }
]
```

```
}  
  ]  
}
```

//this is for supporting async request mode

GET /api/ProductOfferingQualificationRequest

Description :

This operation is used to provide commercial eligibility from address information immediately.
i.e Product Offerings (and constraints on ProductOffering pricing).

This operation execute for offering check.

Attribute name	Mandatory	Default	Rule
----------------	-----------	---------	------

Attribute name	Mandatory	Default	Rule
partyId	N		
channel	N		
productInventoryId	N		
address	N		
Address description	N		
geoCode	N		
publicKey	N		
productOfferingSpecification	N		Product Offering info need productOfferingSpecification or productOfferingCategory
productOfferingCategory	N		Product Offering info need productOfferingSpecification or productOfferingCategory
productCharacteristic	N		
provideOnlyAvailable	N	"Yes"	If this flag is set to No the API will provide both positive and negative eligibility results
provideUnavailabilityReason	N	"No"	This flag is used to add the rational for not-authorized productOffering.

Behavior :

- Return status codes
 - 200 OK – the request was successful
 - 400 Bad Request – error, for example to cover these functional error cases:

- Location is not exist

Use case :

Following example is to check commercial eligibility.

Request asks “what product can run through specific service provider”.

REQUEST

```
GET /api/productOfferingQualification?"address.id"="12345678"&"partyId"="service provider A"&"productOfferingCategory.id"="TV Service with Internet play"
```

Accept: application/json

RESPONSE

200

Content-Type: application/json

```
{
  "productOfferingSpecification" : [
    {
      "id" : "3333",
      "productOfferingCategoryId" : "TV Service with Internet play",
      "productCharacteristic" : [
        {
          "id" : "upstreamspeed",
          "value" : "1 MBPS"
        },
        {
          "id" : "downstreamspeed",
          "value" : "6 MBPS"
        }
      ],
      "orderFeasibilityCheck" : {
```

```
    "eligibilityResult" : "serviceavailable"  
  }  
}  
]
```

POST /api/productOfferingQualificationRequest

Description :

This operation is used to provide commercial eligibility from address information i.e Product Offerings (and constraints on ProductOffering pricing).

This operation execute for offering check.

Attribute name	Mandatory	Default	Rule
partyId	N		
channel	N		
productInventoryId	N		
address	N		
Address description	N		
geoCode	N		

publicKey	N		
productOfferingSpecification	N		Product Offering info need productOfferingSpecification or productOfferingCategory
productOfferingCategory	N		Product Offering info need productOfferingSpecification or productOfferingCategory
productCharacteristic	N		
provideOnlyAvailable	N	“Yes”	If this flag is set to No the API will provide both positive and negative eligibility results
provideUnavailabilityReason	N	“No”	

Behavior :

- Return status codes
 - 200 OK – the request was successful
 - 400 Bad Request – error, for example to cover these functional error cases:
 - Location is not exist

Use case :

Following example is to check commercial eligibility.

Request asks “can these product run through specific service provider”.

REQUEST
POST /api/productOfferingQualification

Accept: application/json

```
{
  "partyId" : "service_provider_00001"
  "address" : {
    "href": "https://www.google.ca/maps/dir//google+map+montreal+place+ville+marie/@45.5014452,-73.6393962,12z/data=!3m1!4b1!4m8!4m7!1m0!1m5!1m1!1s0x4cc91a4498f8f3db:0xa2760b4a779d61d3!2m2!1d-73.5693564!2d45.5014666"
  },
  "productSpecification" {
    "id" : "3333",
    "href": "//serviceSpecification/HDTV-Premium"
  },
  "productCharacteristic" {
    "id" : "upstreamspeed",
    "value" : "500KBPS"
  },
  "productCharacteristic" {
    "name" : "downstreamspeed",
    "value" : "4MBPS"
  }
}
```

RESPONSE

200

Content-Type: application/json

```
{
  "productOfferingSpecification" : [
    {
      "id" : "3333",
      "productOfferingCategoryId" : " TV Service with Internet play",
      "productCharacteristic" : [
        {
          "id" : "upstreamspeed",
          "value" : "500 KBPS"
        },
        {
          "id" : "downstreamspeed",
```

```
    "value" : "4 MBPS"
  }
],
  "orderFeasibilityCheck" : {
    "eligibilityResult" : "unavailable"
    "eligibilityUnavailabilityReason" : [
      {
        "code" : "UNAVAILABLE-300",
        "label" : "need more bandwidth"
      }
    ]
  }
]
}
```

API NOTIFICATION TEMPLATES

RELEASE HISTORY

Release Number	Date	Release led by:	Description
Release 1.0	04/15/2013	Pierre Gauthier TM Forum pgauthier@tmforum.org	First Release of Draft Version of the Document.
Release 1.1			Updated for use in the Paris Spec Jam – and rebranded,.