



MEF 80 Draft (R2)

Quote Management Requirements and Use Cases

June 2019

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3. The Quote Item Relationship Type has been deleted in MEF 79 [10] and MEF 81 [11] and replaced with the Quote Item Relationship Nature. Aligning this document with those documents is key and it is expected that the same change will be made within this document.
4. The format for the Quote Item Relationship ID is being discussed. This field, that is set by the Buyer, needs the ability to use any reference ID specified by the Buyer.
5. A change of the Quote State to Rejected or Cancelled is requested by the Buyer but the actual state change is performed by the Seller. The ability of the Buyer to request a state change has been expanded upon within the document. The Seller's response to the request is still being discussed.
6. The Effective Quote Completion Date identifies when the Quote State has been set to CANCELLED, REJECTED, EXPIRED, or ACCEPTED. The methods the Buyer uses to Cancel or Reject a Quote are specified. The method a Seller uses to move the Quote to the Expired state are specified. The method that the Buyer uses to Accept a Quote have not been clearly specified. The expectation is that it will be similar to the method used to Cancel or Reject a Quote.
7. The definition of the Effective Fulfillment Start Date attribute needs to be agreed to. The use of this attribute is currently not fully understood.
8. The Valid For attribute is currently defined as a single Date/Time attribute. A discussion on the use of this attribute and the possibility of creating two attributes to replace it, Valid From and Valid To, is needed.
9. The Quote Level attribute is used to define the level of the quote, BUDGETARY, INDICATIVE, or FIRM. The current understand is that this attribute applies to all Quote Items within a quote. The possibility that Quote Items can have different Quote Levels has been raised and needs further discussion.
10. It has been suggested that the Quote Price Type attribute, currently defined as a Price-Type, should be defined as an enumeration. This requires additional discussion to agree if it should be an enumeration and what values should be valid for this attribute.
11. The specific meaning of the Price Variation attribute is not clearly defined at this time. A question on whether this indicates a plus/minus variation or if the price specified is the floor/ceiling for the price. A discussion on this topic is required. Additional text describing the attribute will be provided once an agreement is reached on the meaning.
12. The use of the Price Alteration Application Duration attribute is under discussion. One perspective is that this attribute identifies just an integer that specifies the duration based on the Price Alteration Recurring Charge Period entry. The other perspective is that this field should be replaced by two fields that identify the value of the duration and the type of the duration. Once discussed and agreed upon, additional text may be added to clarify the use of this attribute.

13. It has been suggested that a HOLD state be added to the Quote State Machine. This state would be used if the Buyer's Quote Request is incomplete or found to be missing information. The Seller could use this state rather than returning an error to allow the Buyer to provide or clarify information. Once this has been discussed and agreed upon, appropriate changes will be made.
14. A modification to the Quote State Machine that supports Synchronous transactions has been suggested. This modification would add paths directly from start to the READY and UNABLE TO PROVIDE states. This does seem to match the behavior expected for Synchronous transactions. Once discussed and agreed upon, appropriate changes will be made.
15. It has been suggested that the state machines indicate where errors are sent in response to an incomplete or incorrect Quote Request. A discussion on whether this is appropriate to be defined here is required.
16. It has been suggested that a HOLD state be added to the Quote Item State Machine. This state would be used if the Buyer's Quote Request is incomplete or found to be missing information. The Seller could use this state rather than returning an error to allow the Buyer to provide or clarify information. Once this has been discussed and agreed upon, appropriate changes will be made.
17. A modification to the Quote Item State Machine that supports Synchronous transactions has been suggested. This modification would add paths directly from start to the READY and UNABLE TO PROVIDE states. This does seem to match the behavior expected for Synchronous transactions. Once discussed and agreed upon, appropriate changes will be made.
18. The current way that the Use Cases and Requirements are defined is that a notification is sent by the Seller to the Buyer when any attribute changes. This can result in a significant number of notifications being sent during the IN-PROGRESS state of the Quote Request. The desired behavior is for Buyer to be able to identify which attributes they want to receive change notifications for. They will not be notified for all changes only those specified in the Notification Request. It was agreed that the Seller should also be able to restrict notifications until a state, such as READY is reached. Neither of these desired behaviors is currently supported. A future release will address this.

4 Terminology and Acronyms

This section defines the terms used in this specification. In many cases, the normative definitions to terms are found in other documents. In these cases, the third column is used to provide the reference that is controlling, in other MEF or external documents.

In addition, terms that are defined in MEF 10.3 [3], MEF 12.2 [4], MEF 26.2 [5], MEF 50.1 [6], MEF 51.1 [7], MEF 55 [8], MEF 57.1 [9], and MEF 79 [10] are included in this document by reference and are not repeated in the table below.

Term	Definition	Reference
Instantaneous Synchronous Quote	An Instantaneous Synchronous Quote is a quote provided immediately upon receipt of the quote request.	This document
Budgetary Quote	A quote that is provided quickly and with very little analysis such that the Buyer can get an idea of how much the requested product offering could cost.	This document
Indicative Quote	A quote that is provided to the Buyer based on some, but not a complete, pre-order analysis. At this stage there is further analysis that the Seller can (and is willing) to undertake to provide a committed or firm price, but the Seller needs some time to complete this. Ordering may be possible based on the indicative quote with some stipulations as to how cost identified during delivering is addressed. Some fees on an indicative quote may be firm.	This document
Firm Quote	A quote provided to the Buyer based on as rigorous a pre-order analysis as the Seller is willing to carry out. All fees specified on a firm quote are committed and thus cannot be modified or more charges added through the ordering process unless there are changes in the Buyer requirements. A Firm Quote may expire at some date specified by the Seller. The method used to determine dates within a Firm Quote are outside the scope of this document.	This document
Quote Attribute Value	A value assigned to a quote attribute.	This document

Table 2 - Terminology and Abbreviations

5 Scope

This specification defines the process for MEF Carrier Ethernet Quote Management between a Seller and Buyer. At this time this specification is focused on Access E-Line services as defined in MEF 51.1 [7]. In the future this specification will remove references to specific services. This specification is limited to the business process requirements depicted as Use Cases and attribute definitions needed for Quote Management.

6 Compliance Levels

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this specification are to be interpreted as described in BCP 14 (RFC 2119, RFC 8174) when, and only when, they appear in all capitals, as shown here. All key words must be in bold text.

Items that are **REQUIRED** (contain the words **MUST** or **MUST NOT**) are labeled as [Rx] for required. Items that are **RECOMMENDED** (contain the words **SHOULD** or **SHOULD NOT**) are labeled as [Dx] for desirable. Items that are **OPTIONAL** (contain the words **MAY** or **OPTIONAL**) are labeled as [Ox] for optional.

7 Introduction

This specification defines the business requirements and process-related guidelines for the Product Quote process over the Sonata interface. The Sonata interface is defined in MEF 55 [8] as the Management Interface Reference Point supporting the management and operations interactions (e.g., ordering, billing, trouble management, etc.) between two network providers (e.g., Service Provider Domain and Partner Domain). The scope of this specification is limited to interactions between these parties; within this specification, they are referred to as the “Buyer” and the “Seller”.

There are 3 associated “patterns” to the interactivity between the Buyer and Seller when the Buyer issues a Quote request:

1. The Seller may respond immediately with the results of the request.
2. The Seller may acknowledge that they received the request, will process it, and send notifications to update the Buyer on the status (assuming the Buyer has subscribed to receive the notifications).
3. The Seller may indicate they are unable to process the request (immediately or after processing).

To fully define the business interactions associated with inter-carrier quotes, this specification is focused on the following key areas:

- Quote Use Cases and Business Process Definitions
- Specific Quote Attributes supported in this specification and
- State Diagrams for Quotes.

8 Quote Use Cases and Business Process Definitions

8.1 High-Level Use Cases

This section provides the complete set of Use Cases needed to support Product Quote Management and expands on the quote process defined in MEF 50.1 (MEF Services Lifecycle Process Flows). These Use Cases are based on business process standards of interactivity between Buyers and Sellers of Products. The specific attributes associated with each Use Case are defined in section_9_. Prior arrangements for Buyer authentication, security verification, and system interface requirements are not addressed within these use cases. All onboarding requirements must be defined and negotiated between the Buyer and Seller prior to the creation and retrieval of quotes.

The Buyer might have done a serviceability check as specified in MEF 79 [10] prior to the process of establishing a quote. The Seller might reject a request for a quote if a serviceability reference is not provided. The Quote functionality is not defined in regard to any particular product, and thus the Buyer might be able to get a quote on any of the Product Offerings supported by the Seller. The characteristics of the product are found in an associated product specification.

8.2 Quote Use Cases

This section defines the use cases that support Quote Management.

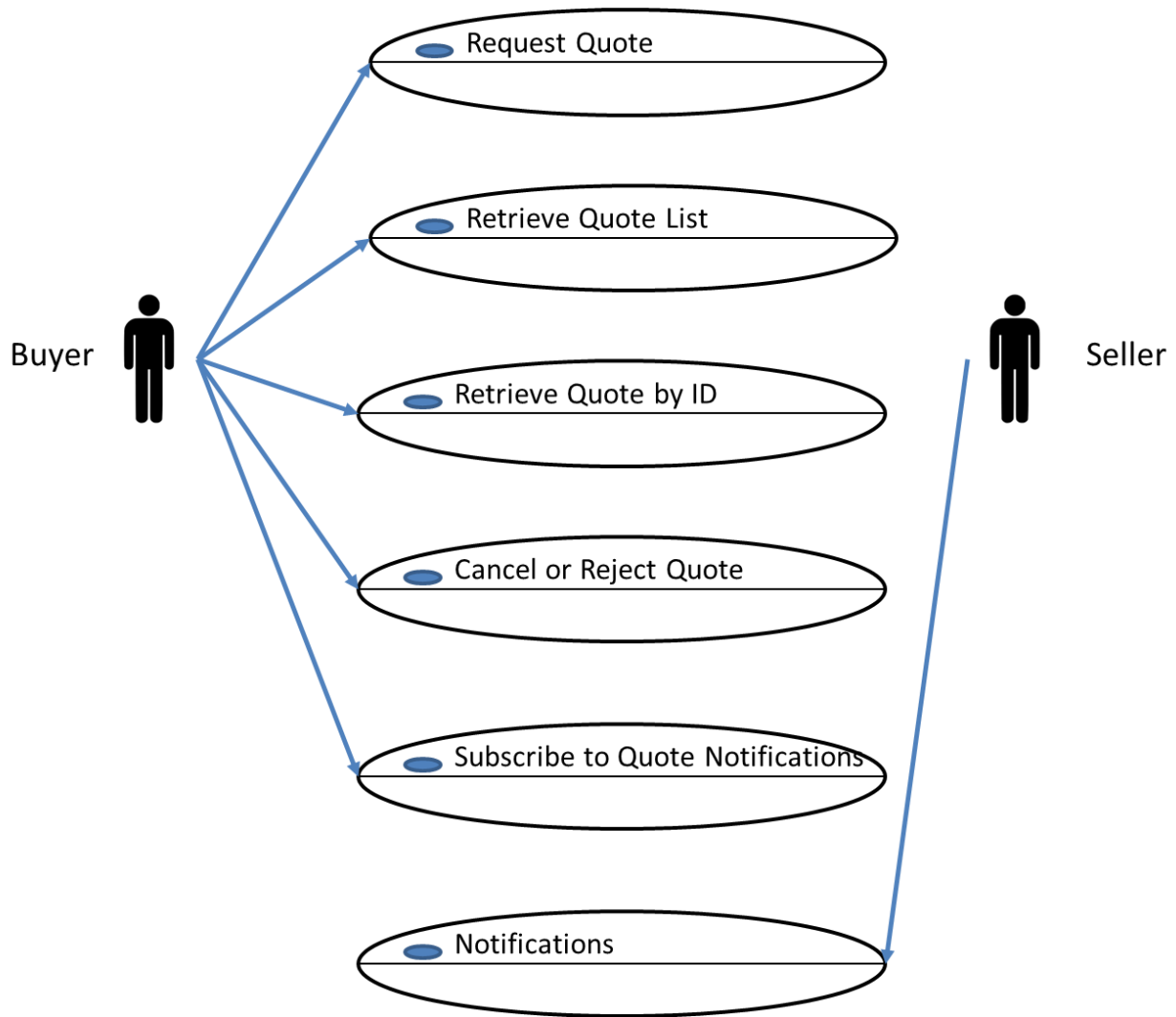


Figure 1 - Quote Use Cases

Use Case #	Use Case Name	Use Case Description
1	Request Quote	The Buyer requests a Product Quote from the Seller.
2	Retrieve Quote List	The Buyer requests a list of Product Quotes from the Seller based on Product Quote filter criteria.
3	Retrieve Quote by Id	The Buyer requests information related to a single Product Quote based on a Quote identifier.
4	Cancel or Reject Quote by Quote ID	The Buyer requests to Cancel or Reject a Product Quote that is “IN_PROGRESS” or “READY”.

5	Subscribe to Notifications	The Buyer requests to subscribe to notifications. Notifications can include the following: <ul style="list-style-type: none"> • Quote creation • Quote state change • Quote attribute value change
6	Quote Notifications	The Seller sends the following types of notifications to the Buyer who has subscribed to these notifications <ul style="list-style-type: none"> • Quote creation • Quote state change • Quote attribute value change

Table 3 - Use Case Table

This section defines the details for Quote Use Case 1.

Field	Description
Use Case Number	1
Use Case Name	Request Quote
Description	The Buyer requests a Product Quote from the Seller
Actors	Buyer/Seller
Pre-Conditions	<ol style="list-style-type: none"> 1. Buyer must be authorized to purchase products from the Seller (Buyer on-boarded) 2. Buyer might have completed pre-order serviceability. 3. Any prerequisite Products are in place between the Buyer and Seller.
Process Steps	<ol style="list-style-type: none"> 1. The Buyer initiates and submits a request for a quote. 2. The Seller validates the quote request based on business validation rules and pre-conditions. 3. The Seller verifies the requested date and time by which a response is to be generated. 4. The Seller verifies the pre-order serviceability reference, if provided. 5. The Seller begins to work on the Quote. 6. The Seller returns either an “instantaneous synchronous quote” if they are able to or responds with a Quote Identifier if they are not able to respond instantaneously.
Post-Conditions	The Buyer obtains either an instantaneous Quote (including a Quote Identifier) or a Quote Identifier. If an instantaneous Quote is not received, the Buyer either queries the Quote ID to obtain status updates or subscribes to Notifications from the Seller and the Seller notifies the Buyer of Quote state changes.

Alternative Paths	<ol style="list-style-type: none"> 1. If the Seller requires that a Serviceability reference be provided and it is absent, they might reject the quote request. 2. If the Seller cannot meet the Quote deadline, a response is returned indicating the deadline cannot be met, and that a quote will not be generated. The Seller can provide a date by which the quote can be provided. 3. The Seller will return an error message if an error is encountered.
Business Process	MEF 50.1 Order-to-Delivery

Table 4 - Request Quote

This section defines the details for Quote Use Case 2.

Field	Description
Use Case Number	2
Use Case Name	Retrieve Quote List
Description	The Buyer requests a list of Product Quotes from the Seller based on Product Quote filter criteria.
Actors	Buyer/Seller
Pre-Conditions	<ol style="list-style-type: none"> 1. Buyer must be authorized to purchase products from the Seller (Buyer on-boarded). 2. The Buyer knows which filtering attributes to specify. The filter criteria are specified in section 9.2.
Process Steps	<ol style="list-style-type: none"> 1. The Buyer submits a request for a list of quotes based on the filter attribute options. 2. The Seller receives the request and validates that the request is valid. 3. The Seller determines if there are any quotes that match the filter criteria in the request. 4. The Seller returns a list of summarized quote instances. The summary data for each quote instance includes: <ul style="list-style-type: none"> • Quote ID • External ID • Quote Level • Quote Description • Quote Date • Quote Status • Project ID • Requested Quote Completion Date • Expected Quote Completion Date • Effective Quote Completion Date
Post-Conditions	Buyer has received list of summarized quotes.

Alternative Paths	<ol style="list-style-type: none"> 1. The Seller will send an error if an error is encountered during processing. 2. If the Buyer has specified an “offset”, or “limit”, only those quotes that correspond to the offset or limit will be returned. 3. The Seller returns an empty list if there are no quotes that meet the filter criteria. 4. If the quantity of records exceeds a Seller’s policy, the Seller must choose to respond with either: <ul style="list-style-type: none"> • an empty list and message that indicates the result set is too large and submit a new more specific query or • a response that indicates the result is too large, first XXX records displayed. The number of records to be returned will be determined by the Seller.
Business Process	MEF 50.1 Order-to-Delivery

Table 5 - Retrieve Quote List

This section defines the details for Quote Use Case 3.

Field	Description
Use Case Number	3
Use Case Name	Retrieve Quote by Quote Id
Description	The Buyer requests information related to a single Product Quote based on a Quote Identifier.
Actors	Buyer/Seller
Pre-Conditions	<ol style="list-style-type: none"> 1. Buyer must be authorized to purchase products from the Seller (Buyer on-boarded). 2. Buyer knows the identifier of the product quote instance to be retrieved.
Process Steps	<ol style="list-style-type: none"> 1. The Buyer submits a request to retrieve information associated with a single Quote by Quote ID. 2. The Seller receives the request and validates the request. 3. The Seller determines if there is a quote instance that matches the identifier. 4. The Seller returns the matching quote instance with all the attributes.
Post-Conditions	Buyer had detailed information on the specified Quote ID.
Alternative Paths	<ol style="list-style-type: none"> 1. The Seller will return an error message if an error is encountered during processing. 2. The Seller will return an error if the quote instance with the specified quote identifier is not found.
Business Process	MEF 50.1 Order-to-Delivery

Table 6 - Retrieve Quote by Id

This section defines the details for Quote Use Case 4.

Field	Description
Use Case Number	4
Use Case Name	Cancel or Reject a Quote by Quote ID
Description	The Buyer requests to Cancel a Product Quote in the IN-PROGRESS state or Reject a Product Quote that is in the READY state.
Actors	Buyer/Seller
Pre-Conditions	<ol style="list-style-type: none"> 1. The ability for the quote to be Cancelled or Rejected exists in the Seller's system. 2. For a Cancel request, the Quote state is IN-PROGRESS. For a Reject request, the Quote state is READY.
Process Steps	<ol style="list-style-type: none"> 1. The Buyer submits a Cancel or Reject request with the Quote ID. 2. The Seller receives the request for cancellation or rejection of a quote and validates the request. 3. Seller verifies that the referenced Quote ID exists. 4. Seller verifies that the current Quote state of the referenced Quote ID allows the transition to cancelled or rejected. 5. The quote is cancelled or rejected.
Post-Conditions	The Buyer receives notification that the referenced Quote ID has been cancelled or rejected.
Alternative Paths	<ol style="list-style-type: none"> 1. The Seller will send an error if the quote to be cancelled or rejected does not exist. 2. The Seller will send an error if they are unable to Cancel or Reject the quote because the referenced Quote ID is not in the correct Quote State. As an example a request to reject a Quote that is not in the READY state would generate an error from the Seller.
Business Process	MEF 50.1 Order-to-Delivery

Table 7 - Cancel or Reject Quote

There is no method defined to modify or amend a Quote Request once it has been submitted. If the Buyer needs to make a change to the Quote Request they Cancel or Reject the existing Quote Request and submit a new Quote Request with the modified or amended information.

This section defines the details for Quote Use Case 5.

Field	Description
Use Case Number	5
Use Case Name	Register for Quote Notifications

Description	A request initiated by the Buyer to instruct the Seller to send notifications of Quote state changes in the event the Seller uses the Deferred Response pattern to respond to a Quote request. Notifications Types are: <ul style="list-style-type: none"> • Quote creation • Quote state change • Quote attribute value change
Actors	Buyer/ Seller
Pre-Conditions	Buyer must be authorized to purchase products from the Seller (Buyer on-boarded).
Process Steps	<ol style="list-style-type: none"> 1. The Buyer sends the Register for Quote Notifications request to the Seller specifying the criteria of where to send such notifications and which Notification Types to include in notifications. 2. The Seller receives this request, records which notifications to send, where to send such notifications for this Buyer, and returns an acknowledgement to the Buyer.
Post-Conditions	The Seller is aware of where to send notifications of Quote state changes as described in Use Case 6 in Table 9.
Alternative Paths	<ol style="list-style-type: none"> 1. The Seller returns an error message if an error is encountered while processing that prevents the Seller from completing the request. 2. The Seller returns an error if they use the Immediate Response pattern when responding to Quote requests.
Business Process	MEF 50.1 Lead-Response-to-Contract

Table 8 - Register for Notifications

This section defines the details for Quote Use Case 6.

Field	Description
Use Case Number	6
Use Case Name	Quote Notifications
Description	The Seller sends notifications for the following qualifying events: quote creation, quote state change, and quote attribute value change as selected by the Buyer.
Actors	Seller
Pre-Conditions	<ol style="list-style-type: none"> 1. One of the qualifying events has occurred. 2. A Buyer must have subscribed to notifications and be authorized to receive them.
Process Steps	<ol style="list-style-type: none"> 1. A notification is created for one of the following types of events: quote creation, quote state change, or quote attribute value change 2. The Seller sends the notification to the location requested by the Buyer
Post-Conditions	The Seller has sent quote related notification.

Alternative Paths	None
Business Process	MEF 50.1 Lead-Response-to-Contract

Table 9 - Quote Notifications

9 Quote Operation Attributes

This section identifies the attributes needed for each of the Quote Use Cases defined previously. It is important to note that this section defines the superset of all MEF-defined attributes needed to support Quote for the Use Cases defined in this document.

The columns in the tables are as follows:

- **Attribute** The name of the attribute
- **Description** A short description of the attribute
- **Type** String, integer, enumerations, or reference to another entry in the table
- **Comments** Comments about the attribute

9.1 Request Quote

This section contains the Service Attributes and requirements for Use Case 1. Table 10 contains the attributes that the Buyer may set in the Quote Request.

Attributes	Description	Type	Comments
Buyer	The unique name of the organization that is acting as the customer in this transaction.	String	
Seller	The unique name of the organization that is acting as the supplier in this transaction.	String	
Quote			
Buyer Quote ID	ID given by the Buyer to facilitate Buyer searches afterwards.	String	The Seller may have a specific policy such as: "When cancelling a quote, the externalId on the request must match the externalId of the quote." However, this is not mandatory. Set by the Buyer
Buyer Project ID	A project id associated to the Quote	String	Set by the Buyer.
Description	Description of the Quote.	String	Set by the Buyer

Quote Level	An indication of whether the quote is budgetary, indicative, or firm.	Enumeration <ul style="list-style-type: none"> • BUDGETARY • INDICATIVE • FIRM 	Quote level contains the possible values and may be set by the Buyer on the Request. It may also be provided by the Seller when responding to a Quote request. All Quote Items in a Quote are under the same Quote Level.
Instantaneous Synchronous Quote	If this flag is set to True, Buyer requests an instant quote be provided in the response to the creation of a quote. If true, the Requested Quote Completion Date is ignored.	Boolean	Set by the Buyer. If set to false, the Seller does not have to provide an instant quote but can. If set to true and the Seller can't accommodate the request, an error is returned. If an error is returned, the quote process is stopped.
Requested Quote Completion Date	This is the date desired by the Buyer to have the quote completed (meaning priced).	DateTime	Set by the Buyer if Instantaneous Synchronous Quote is not True.
Quote Term	The terms of the quote	Reference to a Quote Term	Used to describe a term (also known as commitment) for a Quote. The Term is the same for all Quote Items.
Note	A set of unstructured notes associated to the quote.	Reference to a Note	The notes may be defined by the Buyer or Seller
Related Party Role	Related party roles associated to the quote.	Reference to a Related Party Role	One of the related parties must be a "notification contact", the contact attached to the quote to send back information regarding this quote. Another related party is the "customer". Set by the Buyer and Seller
Quote Item	A list of associated quote items	Reference to a Quote Item	
Agreement	The agreement(s) associated to the quote.	Reference to an Agreement	

Buyer Contact Information	The contact information for the person or organization representing the Buyer that can answer questions related to this Quote request.	Contact information as defined in section	Buyer Contact Information
Quote Item			
Quote Item Reference Number	A Buyer provided identifier to identify quote items and to be able to relate them to one another.	String	This is set by the Buyer.
Quote Item Action	Action to be performed on this quote item. This corresponds to the order item action when an associated product is ordered. It may also be derived from the Product Offering Qualification if the Quote use this process.	Enumeration <ul style="list-style-type: none"> • INSTALL • CHANGE • DISCONNECT 	Set by the Buyer
Product	The product for which the quote is being made.	Reference to a Product	This may be an optional field as specified by the Seller if the POQ ID and POQ Item ID are required by the Seller.
Product Offering	The product offering associated to the product.	Reference to a Product Offering	This may be an optional field as specified by the Seller if the POQ ID and POQ Item ID are required by the Seller.
Quote Item Relationship	The relationship between two quote items.	Quote Item Relationship	
Note	A set of unstructured notes associated to the quote item	Reference to a Note	The notes may be defined by the Buyer or Seller
POQ	The product offering qualification associated to this quote item.	Reference to a POQ	
Related Party Role	Related party roles associated to the quote.	Reference to a Related Party Role	This may be an optional field as specified by the Seller if the POQ ID and POQ Item ID are required by the Seller.
Product Offering			
Product Offering ID	A unique product offering identifier.	String	This identifier is provided by the Seller and communicated to the Buyer during the on-boarding process.

Product			
Product ID	A unique identifier of the product	String	A product that already exists in the inventory. The quote might be for a modification to an existing product.
Product Specification	The Product Specification associated to the Product	Reference to a Product Specification	The product specification that describes the characteristics of this product.
Product Relationship	The product has a product relationship with other product(s).	Reference to a Product Relationship	This provides the means to show relationships between the products being quoted. This may be an optional field as specified by the Seller if the POQ ID and POQ Item ID are required by the Seller.
Place	The Place(s) associated to the Product.	Reference to a Place	The places associated to the product provided at order time.
Product Relationship			
Product Relationship Type	The type of relationship between products.	Enumeration <ul style="list-style-type: none"> • BUNDLED • RELIES_ON • COMES_FROM 	
Related Product	A reference to a product id.	Reference to a Product	The product to which another product is related.
Product Specification			
Product Specification ID	A unique identifier of the product specification.	String	This is a reference to the associated product specification.
Quote Item Relationship	The relationship between two quote items.	Quote Item Relationship	This may be an optional field as specified by the Seller if the POQ ID and POQ Item ID are required by the Seller.
Related Party Role			
Related Party Role ID	A unique identifier of the related party role.	String	

Related Party Role	The role of the related party.	String	These are roles such as “Notification Contact”, or “Customer”. “Buyer” and “Seller” are mandatory.
Related Party	The related party associated to this role	Reference to a Related Party	The related party may be set by the Buyer
Related Party			
Related Party ID	A unique identifier of the related party.	String	These are the related parties that were associated with the quote. May be set by the Buyer or Seller. Only the Buyer can set Buyer information and only the Seller can set Seller information.
Related Party Name	Name of the related party.	String	
Related Party Email Address	The email address of the related party.	String	
Related Party Telephone Number	The telephone number of the related party.	String	
Related Party Number Extension	The telephone number extension of the related party.	String	
Agreement			
Agreement ID	Unique agreement identifier	String	This ID takes priority over Agreement Name and Agreement Path if the three of them do not match.
Agreement Name	Name of the agreement.	String	
Agreement Path	A URI/URL to where the agreement resides.	String	
Note			
Note Date	The date of the note.	DateTime	Set by Buyer or Seller. The Buyer creates a note when requesting the quote. The Seller may add notes.
Note Author	The author of the note.	String	
Note Text	The text of the note.	String	
Quote Item Relationship			

Quote Item Relationship ID	ID of the related quote item (must be in the same quote).	String	Set by Buyer
Quote Item Relationship Type	Relationship type. For example, an E-Line quote item might “rely on” a UNI quote item.	Enumeration <ul style="list-style-type: none"> • BUNDLED • RELIES_ON • COMES_FROM 	Set by Buyer
POQ			
POQ ID	ID of the Product Offering Qualification	String	Reference to a POQ. Provided by the Buyer. The Seller can make this field required or optional
POQ Item ID	ID of the Product Offering Qualification Item	String	A unique identifier of the POQ item. Provided by the Buyer. Seller can make this field required or optional.

Table 10 - Attributes for a Buyer Request Quote Creation

[R1] A Buyer requesting a Quote **MUST** include the following attributes:

- Buyer
- Buyer Quote ID
- Quote Level
- Quote Item
- Product ID
- Product Offering ID
- Product Specification ID
- Place
- Quote Action
- Buyer Contact Information

[R2] The Buyer Quote Request **MUST** have either the Instantaneous Synchronous Quote flag set to TRUE or provide a Requested Quote Completion Date.

- [O1] The Buyer Quote Request **MAY** contain any of the other attributes in Table 10.
- [O2] The Seller **MAY** make the POQ ID and POQ Item ID mandatory fields for a Quote Request.
- [CR1]<[O2] The Buyer **MUST** provide the POQ ID and POQ Item ID(s) in the Quote Request if required by the Seller.
- [CR2]<[O2] The Buyer **MUST NOT** include the Product ID, Product Offering ID, Product Specification ID, and Place in the Quote Request if the POQ ID and POQ Item ID(s) are required by the Seller.

Table 11 and Table 12 contain the attributes that the Seller may respond to the Buyer’s Quote Request with.

Attributes	Description	Type	Comments
Buyer	The unique name of the organization that is acting as the customer in this transaction.	String	
Seller	The unique name of the organization that is acting as the supplier in this transaction.	String	
Quote			
Quote ID	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	The identifier is created by the Seller when the product quote instance is created.
Buyer Quote ID	ID given by the Buyer to facilitate Buyer searches afterwards.	String	The Seller may have a specific policy such as: “When cancelling a quote, the externalId on the request must match the externalId of the quote.” However, this is not mandatory. Set by the Buyer
Buyer Project ID	A project id associated to the Quote	String	Set by the Buyer.
Description	Description of the Quote.	String	Set by the Buyer

Quote State	The state of the Quote.	Enumeration <ul style="list-style-type: none"> • IN_PROGRESS • CANCELLED • UNABLE_TO_PROVIDE • READY • REJECTED • ACCEPTED • EXPIRED 	Set by the Seller
Quote Date	Date when the Quote was created within the Seller's system	DateTime	This value is set by the Seller.
Effective Quote Completion Date	Date when the Quote State was set to Cancelled, Rejected, Expired, or Accepted.	DateTime	This value is set by the Seller.
Expected Fulfillment Start Date	Date when product in the Quote should be available.	DateTime	This value is set by the Seller.
Expected Quote Completion Date	This is the date provided by the Seller to indicate expected Quote completion date.	DateTime	This value is set by the Seller. When an Instantaneous Synchronous Response is provided this is the current date.
Valid For	The time period for which this quote is valid.	TimePeriod	The time period contains two attributes and is set by the Seller ValidFrom ValidTo
Quote Level	An indication of whether the quote is budgetary, indicative, or firm.	Enumeration <ul style="list-style-type: none"> • BUDGETARY • INDICATIVE • FIRM 	Quote level contains the possible values and may be set by the Buyer on the Request. It may also be provided by the Seller when responding to a Quote request.
Note	A set of unstructured notes associated to the quote.	Reference to a Note	The notes may be defined by the Buyer or Seller

Related Party Role	Related party roles associated to the quote.	Reference to a Related Party Role	One of the related parties must be a "notification contact", the contact attached to the quote to send back information regarding this quote. Another related party is the "customer". Set by the Buyer and Seller
Quote Item	A list of associated quote items	Reference to a Quote Item	
Agreement	The agreement(s) associated to the quote.	Reference to an Agreement	
Quote Term	The terms of the quote	Reference to a Quote Term	Used to describe a term (also known as commitment) for a Quote. The Term is the same for all Quote Items.
Quote Item			
Quote Item State	The state of the Quote Item	Enumeration <ul style="list-style-type: none"> • IN_PROGRESS • UNABLE_TO_PROVIDE • READY • ABANDONED 	Set by the Seller:
Quote Item Reference	A Buyer provided identifier to identify quote items and to be able to relate them to one another.	String	This is set by the Buyer.
Quote Item Action	Action to be performed on this quote item. This corresponds to the order item action when an associated product is ordered. It may also be derived from the Product Offering Qualification if the Quote uses this process.	Enumeration <ul style="list-style-type: none"> • INSTALL • CHANGE • DISCONNECT • NO_CHANGE 	Set by the Buyer



Quote Item Price	Prices associated to the Quote Item. See additional details on Price in Table 12.	Reference to a Quote Price	
Quote Item Name	Name of the Quote Item Term	String	Set by the Seller
Quote Item Description	Description of the Quote Item Term	String	Set by the Seller
Quote Item Duration	Duration of the term	Duration	Set by the Seller
Product	The product for which the quote is being made.	Reference to a Product	
Product Offering	The product offering associated to the product.	Reference to a Product Offering	
Quote Item Relationship	The relationship between two quote items.	Quote Item Relationship	
Note	A set of unstructured notes associated to the quote.	Reference to a Note	The notes may be defined by the Buyer or Seller
Qualification	The product offering qualification associated to this quote item.	Reference to a Qualification	
Related Party Role	Related party roles associated to the quote.	Reference to a Related Party Role	One of the related parties must be a "notification contact", the contact attached to the quote to send back information regarding this quote. Another related party is the "customer". Set by the Buyer and Seller
Product Offering			
Product Offering ID	A unique product offering identifier.	String	This identifier is provided by the Seller and communicated to the Buyer during the onboarding process.
Product			
Product ID	A unique identifier of the product	String	A product that already exists in the inventory. The quote might be for a modification to an existing product.

Product Specification	The Product Specification associated to the Product	Reference to a Product Specification	The product specification that describes the characteristics of this product.
Product Relationship	The product has a product relationship with other product(s).	Reference to a Product Relationship	This provides the means to show relationships between the products being quoted.
Place	The Place(s) associated to the Product.	Reference to a Place	The places associated to the product provided at order time.
Product Relationship			
Product Relationship Type	The type of relationship between products.	Enumeration <ul style="list-style-type: none"> • BUNDLED • RELIES_ON • COMES_FROM 	
Product	The product for which the quote is being made.	Reference to a Product	
Product Specification			
Product Specification ID	A unique identifier of the product specification.	String	This is a reference to the associated product specification.
Related Party Role			
Related Party Role ID	A unique identifier of the related party role.	String	
Related Party Role	The role of the related party.	String	These are roles such as “Notification Contact”, or “Customer”. “Buyer” and “Seller” are mandatory.
Related Party	The related party associated to this role	Reference to a Related Party	The related party may be set by the Buyer
Related Party			
Related Party ID	A unique identifier of the related party.	String	These are the related parties that were associated with the quote. May be set by the Buyer or Seller. Only the Buyer can set Buyer information and only the Seller can set Seller information.
Related Party Name	Name of the related party.	String	



Related Party Email Address	The email address of the related party.	String	
Related Party Telephone Number	The telephone number of the related party.	String	
Related Party Number Extension	The telephone number extension of the related party.	String	
Agreement			
Agreement ID	Unique agreement identifier	String	This ID takes priority over Agreement Name and Agreement Path if the three of them do not match.
Agreement Name	Name of the agreement.	String	
Agreement Path	A URI/URL to where the agreement resides.	String	
Note			
Note Date	The date of the note.	DateTime	Set by Buyer or Seller. The Buyer creates a note when requesting the quote. The Seller may add notes.
Note Author	The author of the note.	String	
Note Text	The text of the note.	String	
Quote Item Relationship			
Quote Item Relationship ID	ID of the related quote item (must be in the same quote).	String	Set by Buyer
Quote Item Relationship Type	Relationship type. For example, an E-Line quote item might "rely on" a UNI quote item.	Enumeration <ul style="list-style-type: none">• BUNDLED• RELIES_ON• COMES_FROM	Enumeration. The possible values are: Set by Buyer
Qualification			
POQ ID	ID of the Product Offering Qualification	String	Reference to a POQ. Provided by the Buyer. The Seller can make this field required or optional
POQ Item ID	ID of the Product Offering Qualification Item	String	A unique identifier of the POQ item. Provided by the Buyer. Seller can make this field required or optional.
Quote Item Term			

Quote Item Term Name	Name of the term	String	Set by the Seller
Quote Item Term Description	Description of the term	String	Set by the Seller
Quote Item Term Duration	Duration of the term	Duration	Set by the Seller

Table 11 - Seller Quote Request Response

Attributes	Description	Type	Comments
Quote Price			
Quote Price Name	Name of the Quote/ Quote Item price.	String	Set by the Seller
Quote Price Description	Description of the Quote/Quote Item price.	String	Set by the Seller
Quote Price Type	Indicates if the price is for recurring or non- recurring charges.	PriceType	Set by the Seller
Quote Price Recurring Charge Period	Used for a recurring charge to indicate period	Enumeration <ul style="list-style-type: none"> • DAY • WEEK • MONTH • YEAR 	
Quote Price Unit Of Measure	Unit of Measure, if price depends on it (Gb, SMS volume, etc.).	String	Set by the Seller
Quote Price	The associated price.	Reference to a Price	Set by the Seller
Quote Price Alteration	The associated price alteration.	Reference to a Price Alteration	Set by the Seller
Price			
Price Tax Rate	The tax rate applied.		
Price Tax Included Amount	All taxes included amount (expressed in the given currency).		
Price Duty Free Amount	All taxes excluded amount (expressed in the given currency).		
Price Range	Price range describes a range of price (Min/Max) for budgetary or indicative quote.		

Price Variation	Price variation describes a variation on the price for budgetary or indicative quote.		
Price Alteration			
Price Alteration Name	A short descriptive name such as "Monthly discount".	String	Set by the Seller
Price Alteration Description	A narrative that explains in detail the semantics of this quote item price alteration.	String	Set by the Seller
Price Alteration Type	A category that describes the price such as recurring, one time and usage.	String	Set by the Seller
Price Alteration Unit Of Measure	The unit of measure of the price alteration. Could be minutes, GB...	String	Set by the Seller
Price Alteration Recurring Charge Period	The periodicity of the recurring charge.	Enumeration <ul style="list-style-type: none"> • DAY • WEEK • MONTH • YEAR 	
Price Alteration Application Duration	Duration during which the alteration applies on the quote item price (for instance 2 months free of charge for the recurring charge).	Integer	Set by the Seller
Price Alteration Priority	Priority level for applying this alteration among all the defined alterations on the order item price.	Integer	Set by the Seller
Price Alteration Percentage	Percentage to apply for Product Offering Price Alteration	Float	Set by the Seller
Price Alteration Price	Provides all amounts (tax included, duty free, tax rate), used currency and percentage to apply for Price Alteration.	Reference to a Price	Set by the Seller
Price Range			
Min Tax Included Amount	Minimum amount including tax.	Money <ul style="list-style-type: none"> • Value • Unit 	Set by Seller

Max Tax Included Amount	Maximum amount including tax.	Money <ul style="list-style-type: none"> • Value • Unit 	Set by Seller
Min Duty Free Amount	Minimum duty-free amount	Money <ul style="list-style-type: none"> • Value • Unit 	Set by Seller
Max Duty Free Amount	Maximum duty-free amount	Money <ul style="list-style-type: none"> • Value • Unit 	Set by Seller

Table 12 - Seller Quote Request Response Pricing Detail

- [R3] The Seller **MUST** respond to an Instantaneous Synchronous Quote request with the information contained within Table 11 and Table 12.
- [R4] The Seller **MUST** respond to a Quote request that is not an Instantaneous Synchronous Quote request with the Quote ID as shown in Table 11.

9.2 Retrieve Quote List

This section contains the Service Attributes and requirements for Use Case 2. Table 13 contains the attributes that the Buyer may set in the Retrieve Quote List request.

Attributes	Description	Type	Comments
Buyer	The unique name of the organization that is acting as the customer in this transaction.	String	
Seller	The unique name of the organization that is acting as the supplier in this transaction.	String	
Quote			
Quote ID	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	The identifier is created by the Seller when the product quote instance is created.
Buyer Quote ID	ID given by the Buyer to facilitate Buyer searches afterwards.	String	The Seller may have a specific policy such as: "When cancelling a quote, the externalId on the request must match the externalId of the quote." However, this is not mandatory. Set by the Buyer
Quote Date	Date when the Quote was created within the Seller's system	DateTime	This value is set by the Seller.
Quote State	The state of the Quote.	Enumeration <ul style="list-style-type: none"> • IN_PROGRESS • CANCELLED • UNABLE_TO_PROVIDE • READY • REJECTED • ACCEPTED • EXPIRED 	Set by the Seller
Quote Level	An indication of whether the quote is budgetary, indicative, or firm.	Enumeration <ul style="list-style-type: none"> • BUDGETARY • INDICATIVE FIRM 	Quote level contains the possible values and may be set by the Buyer on the Request. It may also be provided

			by the Seller when responding to a Quote request.
Expected Quote Completion Date	This is the date provided by the Seller to indicate expected Quote completion date.	DateTime	This value is set by the Seller. When an Instantaneous Synchronous Response is provided this is the current date.
Buyer Project ID	A project id associated to the Quote	String	Set by the Buyer.

Table 13 - Retrieve Quote List Request

[O1] The Buyer **MAY** use any of the filter criteria specified in Table 13 for a Retrieve Quote List request.

The Seller responds to the Retrieve Quote List request with the attributes shown in Table 14.

Attributes	Description	Type	Comments
Buyer	The unique name of the organization that is acting as the customer in this transaction.	String	
Seller	The unique name of the organization that is acting as the supplier in this transaction.	String	
Quote			
Quote ID	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	The identifier is created by the Seller when the product quote instance is created.

Buyer Quote ID	ID given by the Buyer to facilitate Buyer searches afterwards.	String	The Seller may have a specific policy such as: “When cancelling a quote, the externalId on the request must match the externalId of the quote.” However, this is not mandatory. Set by the Buyer
Quote Level	An indication of whether the quote is budgetary, indicative, or firm.	Enumeration <ul style="list-style-type: none"> • BUDGETARY • INDICATIVE • FIRM 	Quote level contains the possible values and may be set by the Buyer on the Request. It may also be provided by the Seller when responding to a Quote request.
Description	Description of the Quote.	String	Set by the Buyer
Quote Date	Date when the Quote was created within the Seller’s system	DateTime	This value is set by the Seller.
Quote State	The state of the Quote.	Enumeration <ul style="list-style-type: none"> • IN_PROGRESS • CANCELLED • UNABLE_TO_PROVIDE • READY • REJECTED • ACCEPTED • EXPIRED 	Set by the Seller
Buyer Project ID	A project id associated to the Quote	String	Set by the Buyer.
Requested Quote Completion Date	This is the date desired by the Buyer to have the quote completed (meaning priced).	DateTime	Set by the Buyer if Instantaneous Synchronous Quote is not True.

Expected Quote Completion Date	This is the date provided by the Seller to indicate expected Quote completion date.	DateTime	This value is set by the Seller. When an Instantaneous Synchronous Response is provided this is the current date.
Effective Quote Completion Date	Date when the Quote State was set to Cancelled, Rejected, Expired, or Accepted.	DateTime	This value is set by the Seller.

Table 14 - Seller Response to Retrieve Quote List Request

[R5] The Seller **MUST** respond to a Retrieve Quote List request with the attributes shown in Table 14.

9.3 Retrieve Quote by Quote ID

This section contains the Service Attributes and requirements for Use Case 3. Table 15 contains the attributes that the Buyer may set in the Retrieve Quote by Quote ID request.

Attributes	Description	Type	Comments
Buyer	The unique name of the organization that is acting as the customer in this transaction.	String	
Seller	The unique name of the organization that is acting as the supplier in this transaction.	String	
Quote			
Quote ID	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	The identifier is created by the Seller when the product quote instance is created.

Table 15 - Retrieve Quote by Quote ID Request

[R6] The Buyer **MUST** include the Quote ID in the Retrieve Quote by Quote ID request.

Table 16 and Table 17 contain the attributes that the Seller may respond to the Buyer’s Retrieve Quote by Quote ID request with.

Attributes	Description	Type	Comments
Buyer	The unique name of the organization that is acting as the customer in this transaction.	String	
Seller	The unique name of the organization that is acting as the supplier in this transaction.	String	
Quote			
Quote ID	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	The identifier is created by the Seller when the product quote instance is created.
Buyer Quote ID	ID given by the Buyer to facilitate Buyer searches afterwards.	String	The Seller may have a specific policy such as: "When cancelling a quote, the externalId on the request must match the externalId of the quote." However, this is not mandatory. Set by the Buyer
Buyer Project ID	A project id associated to the Quote	String	Set by the Buyer.
Description	Description of the Quote.	String	Set by the Buyer
Quote State	The state of the Quote.	Enumeration <ul style="list-style-type: none"> • IN_PROGRESS • CANCELLED • UNABLE_TO_PROVIDE • READY • REJECTED • ACCEPTED • EXPIRED 	Set by the Seller
Quote Date	Date when the Quote was created within the Seller's system	DateTime	This value is set by the Seller.
Effective Quote Completion Date	Date when the Quote State was set to Cancelled, Rejected, Expired, or Accepted.	DateTime	This value is set by the Seller.
Expected Fulfillment Start Date	Date when product in the Quote should be available.	DateTime	This value is set by the Seller.

Expected Quote Completion Date	This is the date provided by the Seller to indicate expected Quote completion date.	DateTime	This value is set by the Seller. When an Instantaneous Synchronous Response is provided this is the current date.
Valid For	The time period for which this quote is valid.	TimePeriod	The time period contains two attributes and is set by the Seller ValidFrom ValidTo
Quote Level	An indication of whether the quote is budgetary, indicative, or firm.	Enumeration <ul style="list-style-type: none"> • BUDGETARY • INDICATIVE • FIRM 	Quote level contains the possible values and may be set by the Buyer on the Request. It may also be provided by the Seller when responding to a Quote request.
Note	A set of unstructured notes associated to the quote.	Reference to a Note	The notes may be defined by the Buyer or Seller
Related Party Role	Related party roles associated to the quote.	Reference to a Related Party Role	One of the related parties must be a "notification contact", the contact attached to the quote to send back information regarding this quote. Another related party is the "customer". Set by the Buyer and Seller
Quote Item	A list of associated quote items	Reference to a Quote Item	
Agreement	The agreement(s) associated to the quote.	Reference to an Agreement	
Quote Term	The terms of the quote	Reference to a Quote Term	Used to describe a term (also known as commitment) for a Quote. The Term is the same for all Quote Items.

Quote Item			
Quote Item State	The state of the Quote Item	Enumeration <ul style="list-style-type: none"> • IN_PROGRESS • UNABLE_TO_PROVIDE • READY • ABANDONED 	Set by the Seller:
Quote Item Reference	A Buyer provided identifier to identify quote items and to be able to relate them to one another.	String	This is set by the Buyer.
Quote Item Action	Action to be performed on this quote item. This corresponds to the order item action when an associated product is ordered. It may also be derived from the Product Offering Qualification if the Quote uses this process.	Enumeration <ul style="list-style-type: none"> • INSTALL • CHANGE • DISCONNECT • NO_CHANGE 	Set by the Buyer
Quote Item Price	Prices associated to the Quote Item. See additional details on Price in Table 12.	Reference to a Quote Price	
Quote Item Name	Name of the Quote Item Term	String	Set by the Seller
Quote Item Description	Description of the Quote Item Term	String	Set by the Seller
Quote Item Duration	Duration of the term	Duration	Set by the Seller
Product	The product for which the quote is being made.	Reference to a Product	
Product Offering	The product offering associated to the product.	Reference to a Product Offering	
Quote Item Relationship	The relationship between two quote items.	Quote Item Relationship	
Note	A set of unstructured notes associated to the quote.	Reference to a Note	The notes may be defined by the Buyer or Seller
Qualification	The product offering qualification associated to this quote item.	Reference to a Qualification	

Related Party Role	Related party roles associated to the quote.	Reference to a Related Party Role	One of the related parties must be a "notification contact", the contact attached to the quote to send back information regarding this quote. Another related party is the "customer". Set by the Buyer and Seller
Product Offering			
Product Offering ID	A unique product offering identifier.	String	This identifier is provided by the Seller and communicated to the Buyer during the onboarding process.
Product			
Product ID	A unique identifier of the product	String	A product that already exists in the inventory. The quote might be for a modification to an existing product.
Product Specification	The Product Specification associated to the Product	Reference to a Product Specification	The product specification that describes the characteristics of this product.
Product Relationship	The product has a product relationship with other product(s).	Reference to a Product Relationship	This provides the means to show relationships between the products being quoted.
Place	The Place(s) associated to the Product.	Reference to a Place	The places associated to the product provided at order time.
Product Relationship			
Product Relationship Type	The type of relationship between products.	Enumeration <ul style="list-style-type: none"> • BUNDLED • RELIES_ON • COMES_FROM 	
Product	The product for which the quote is being made.	Reference to a Product	
Product Specification			
Product Specification ID	A unique identifier of the product specification.	String	This is a reference to the associated product specification.

Related Party Role			
Related Party Role ID	A unique identifier of the related party role.	String	
Related Party Role	The role of the related party.	String	These are roles such as “Notification Contact”, or “Customer”. “Buyer” and “Seller” are mandatory.
Related Party	The related party associated to this role	Reference to a Related Party	The related party may be set by the Buyer
Related Party			
Related Party ID	A unique identifier of the related party.	String	These are the related parties that were associated with the quote. May be set by the Buyer or Seller. Only the Buyer can set Buyer information and only the Seller can set Seller information.
Related Party Name	Name of the related party.	String	
Related Party Email Address	The email address of the related party.	String	
Related Party Telephone Number	The telephone number of the related party.	String	
Related Party Number Extension	The telephone number extension of the related party.	String	
Agreement			
Agreement ID	Unique agreement identifier	String	This ID takes priority over Agreement Name and Agreement Path if the three of them do not match.
Agreement Name	Name of the agreement.	String	
Agreement Path	A URI/URL to where the agreement resides.	String	
Note			
Note Date	The date of the note.	DateTime	Set by Buyer or Seller. The Buyer creates a note when requesting the quote. The Seller may add notes.
Note Author	The author of the note.	String	

Note Text	The text of the note.	String	
Quote Item Relationship			
Quote Item Relationship ID	ID of the related quote item (must be in the same quote).	String	Set by Buyer
Quote Item Relationship Type	Relationship type. For example, an E-Line quote item might “rely on” a UNI quote item.	Enumeration <ul style="list-style-type: none"> • BUNDLED • RELIES_ON • COMES_FROM 	Enumeration. The possible values are: Set by Buyer
Qualification			
POQ ID	ID of the Product Offering Qualification	String	Reference to a POQ. Provided by the Buyer. The Seller can make this field required or optional
POQ Item ID	ID of the Product Offering Qualification Item	String	A unique identifier of the POQ item. Provided by the Buyer. Seller can make this field required or optional.
Quote Item Term			
Quote Item Term Name	Name of the term	String	Set by the Seller
Quote Item Term Description	Description of the term	String	Set by the Seller
Quote Item Term Duration	Duration of the term	Duration	Set by the Seller

Table 16 - Seller Retrieve Quote by Quote ID Request Response

Attributes	Description	Type	Comments
Quote Price			
Quote Price Name	Name of the Quote/Quote Item price.	String	Set by the Seller
Quote Price Description	Description of the Quote/Quote Item price.	String	Set by the Seller
Quote Price Type	Indicates if the price is for recurring or non-recurring charges.	PriceType	Set by the Seller

Quote Price Recurring Charge Period	Used for a recurring charge to indicate period	Enumeration <ul style="list-style-type: none"> • DAY • WEEK • MONTH • YEAR 	
Quote Price Unit Of Measure	Unit of Measure, if price depends on it (Gb, SMS volume, etc.).	String	Set by the Seller
Quote Price	The associated price.	Reference to a Price	Set by the Seller
Quote Price Alteration	The associated price alteration.	Reference to a Price Alteration	Set by the Seller
Price			
Price Tax Rate	The tax rate applied.		
Price Tax Included Amount	All taxes included amount (expressed in the given currency).		
Price Duty Free Amount	All taxes excluded amount (expressed in the given currency).		
Price Range	Price range describes a range of price (Min/Max) for budgetary or indicative quote.		
Price Variation	Price variation describes a variation on the price for budgetary or indicative quote.		
Price Alteration			
Price Alteration Name	A short descriptive name such as "Monthly discount".	String	Set by the Seller
Price Alteration Description	A narrative that explains in detail the semantics of this quote item price alteration.	String	Set by the Seller
Price Alteration Type	A category that describes the price such as recurring, one time and usage.	String	Set by the Seller
Price Alteration Unit Of Measure	The unit of measure of the price alteration. Could be minutes, GB...	String	Set by the Seller

Price Alteration Recurring Charge Period	The periodicity of the recurring charge.	Enumeration <ul style="list-style-type: none"> • DAY • WEEK • MONTH • YEAR 	
Price Alteration Application Duration	Duration during which the alteration applies on the quote item price (for instance 2 months free of charge for the recurring charge).	Integer	Set by the Seller
Price Alteration Priority	Priority level for applying this alteration among all the defined alterations on the order item price.	Integer	Set by the Seller
Price Alteration Percentage	Percentage to apply for Product Offering Price Alteration	Float	Set by the Seller
Price Alteration Price	Provides all amounts (tax included, duty free, tax rate), used currency and percentage to apply for Price Alteration.	Reference to a Price	Set by the Seller
Price Range			
Min Tax Included Amount	Minimum amount including tax.	Money <ul style="list-style-type: none"> • Value • Unit 	Set by Seller
Max Tax Included Amount	Maximum amount including tax.	Money <ul style="list-style-type: none"> • Value • Unit 	Set by Seller
Min Duty Free Amount	Minimum duty-free amount	Money <ul style="list-style-type: none"> • Value • Unit 	Set by Seller
Max Duty Free Amount	Maximum duty-free amount	Money <ul style="list-style-type: none"> • Value • Unit 	Set by Seller

Table 17 - Seller Retrieve Quote by Quote ID Request Response Pricing Detail

[R7] The Seller **MUST** respond to a Retrieve Quote by Quote ID request with the attributes in Table 16 and Table 17.

9.4 Cancel or Reject a Quote by Quote ID

This section contains the Attributes and requirements for Use Case 4. Table 18 contains the attributes that the Buyer may set in the Cancel or Reject Quote by Quote ID request.

Attributes	Description	Type	Comments
Buyer	The unique name of the organization that is acting as the customer in this transaction.	String	
Seller	The unique name of the organization that is acting as the supplier in this transaction.	String	
Quote			
Quote ID	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	The identifier is created by the Seller when the product quote instance is created.
Requested Quote State	The state, either Cancelled or Rejected, which the Buyer wants to move the specified Quote ID to.	Enumeration <ul style="list-style-type: none"> • CANCELLED • REJECTED 	Set by Buyer

Table 18 - Cancel or Reject a Quote by Quote ID Request Attributes

[R8] A Buyer **MUST** include the Quote ID and the Requested Quote State in a Cancel or Reject a Quote by Quote ID request.

Table 19 contains the attributes that the Seller may respond to the Buyer’s Cancel or Reject Quote by Quote ID request with.

Attributes	Description	Type	Comments
Buyer	The unique name of the organization that is acting as the customer in this transaction.	String	
Seller	The unique name of the organization that is acting as the supplier in this transaction.	String	

Quote			
Quote ID	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	The identifier is created by the Seller when the product quote instance is created.
Quote State	The state of the Quote.	Enumeration <ul style="list-style-type: none"> • IN_PROGRESS • CANCELLED • UNAVAILABLE_TO_PROVIDE • READY • REJECTED • ACCEPTED • EXPIRED 	Set by the Seller

Table 19 - Seller’s Response to Cancel or Reject Quote by Quote ID Request

[R9] The Seller MUST respond the Buyer’s Cancel or Reject Quote by Quote ID request as shown in Table 19.

9.5 Register for Quote Notifications

This section contains the Attributes and requirements for Use Case 5. Table 20 contains the Attributes for the Buyer’s Register for Quote Notification request.

Attributes	Description	Type	Comments
Buyer	The unique name of the organization that is acting as the customer in this transaction.	String	
Seller	The unique name of the organization that is acting as the supplier in this transaction.	String	

Return Address Information	The detailed information on the mechanism and address specifying where the Seller is to send any Quote Notifications. There can be multiple locations for one Buyer.		For Further Study
List of Notification Types	The types of notifications that the Buyer wishes to receive. Each item in the list is either CREATE (send notification when a new Quote is created), QUOTE STATE CHANGE (send notification when there is a change to the state of the Quote or any Quote Item), or QUOTE ATTRIBUTE VALUE CHANGE (send notification when there is a change to the value of any Quote or Quote Item Attribute).	String that is one of: <ul style="list-style-type: none"> • CREATE • QUOTE STATE CHANGE • QUOTE ATTRIBUTE VALUE CHANGE 	
Action	Specification to Start Notifications or Stop Notifications	String that is one of: <ul style="list-style-type: none"> • START • STOP 	

Table 20 - Register for Quote Notifications Buyer Attributes

The following are the requirements on the Buyer when making the request for the Operation associated with Use Case 5.

- [R10]** When making a Quote notification request, the Buyer **MUST** specify the Return Address Information and Action attributes shown in Table 20.

Table 21 defines the attributes that the Seller uses to respond to the Quote Notification Request Operation.

Attributes	Description	Type	Comments
Seller Response Code	A response identifier, indicating if the Seller was able to successfully fulfill the request. The detailed response options are for further study but include: Success, Not supported and Invalid Return Address Information.	String	For further study

Table 21 - Seller Response Attributes for Use Case 5

[R11] When responding to a Quote notification request, the Seller **MUST** specify the Seller Response Code attribute shown in Table 21.

9.6 Quote Notification

This section contains the Attributes and requirements for Use Case 6. Table 22 contains the Attributes for the Seller Quote Notification.

Attributes	Description	Type	Comments
Quote ID	Unique (within the Seller quoting domain) identifier for the quote, as attributed by the Seller.	String	The identifier is created by the Seller when the product quote instance is created.
Notification Type	The type of notification.	String that is one of: <ul style="list-style-type: none"> • CREATE • QUOTE STATE CHANGE • QUOTE ATTRIBUTE VALUE CHANGE 	

Table 22 - Seller Quote Notification

The following requirements apply to the Seller Quote Notification.

[R12] The Seller **MUST NOT** send Quote Notifications to Buyers who have not registered for Quote Notifications.

[R13] The Seller **MUST** send Quote Notifications to Buyers who have registered for Quote Notifications.

[R14] Quote Notifications **MUST** include the Attributes shown in Table 22.

10 State Diagrams

10.1 Quote Process Flow

The Quote process flow is shown below. The diagram captures various states that the Quote goes through in its lifecycle. The specific states are managed by the Seller based on its processing and/or based on Buyer's action. If the Buyer subscribes to Quote state change notifications, they will receive a notification every time the state changes.

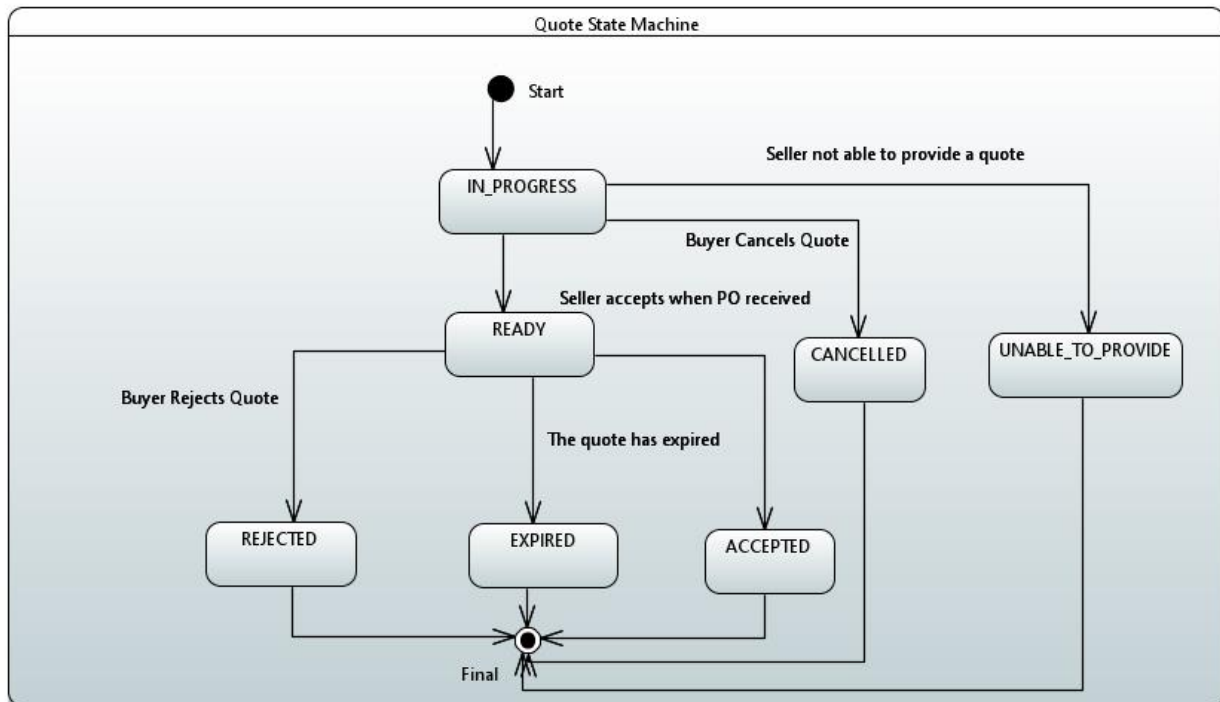


Figure 2 - Quote Process Flow

The definitions of the various quote states are as follows:

State	Description
IN_PROGRESS	The IN_PROGRESS state is when the quote is currently in the hands of the Seller to build it according to the Buyer's requirements. The pricing and expected completion date should be updatable in this state. At least one quote item is in an IN_PROGRESS state. No quote items may be in an UNABLE_TO_PROVIDE state.

READY	The READY state is where the quote has been internally approved by the Seller and sent to the Buyer. The quote is no longer updatable. All quote items must be in a READY state. Note: future release of this specification may make quotes updatable in certain circumstances.
CANCELLED	A quote can only be cancelled when it is in an IN_PROGRESS state. The CANCELLED state is when the quote process is stopped by a Buyer through an explicit cancellation request. Quote items might be in an IN_PROGRESS or READY state. Any quote items in an IN_PROGRESS state are moved to an ABANDONED state.
UNABLE_TO_PROVIDE	This state is set by the Seller when they are not able to provide a quote. One quote item is in an UNABLE_TO_PROVIDE state. Any quote items in an IN_PROGRESS state are moved to an ABANDONED state. When a quote is in the UNABLE_TO_PROVIDE state, quote items might be in the READY state.
REJECTED	The REJECTED state is used when the Buyer does not wish to progress with the quotation. The Buyer changes the state of the quote to REJECTED. In order for a Buyer to actually reject the quote, all quote items must be in a READY state.
EXPIRED	This state is set by the Seller from a READY state to indicate that the quote will no longer be honored as it has expired. All the quote items must be in a READY state
ACCEPTED	The ACCEPTED state is set by the Seller. It is triggered by a product order. All quote items must be in a READY state. Note: In a future release the Buyer may be able to set the state to ACCEPTED.

Table 23 - Quote State Values

10.2 Quote Item Process Flow

The Quote Item process flow is shown below. The diagram captures various states that the Quote Item goes through in its lifecycle. The specific states are managed by the Seller based on its processing and/or based on Buyer's action.

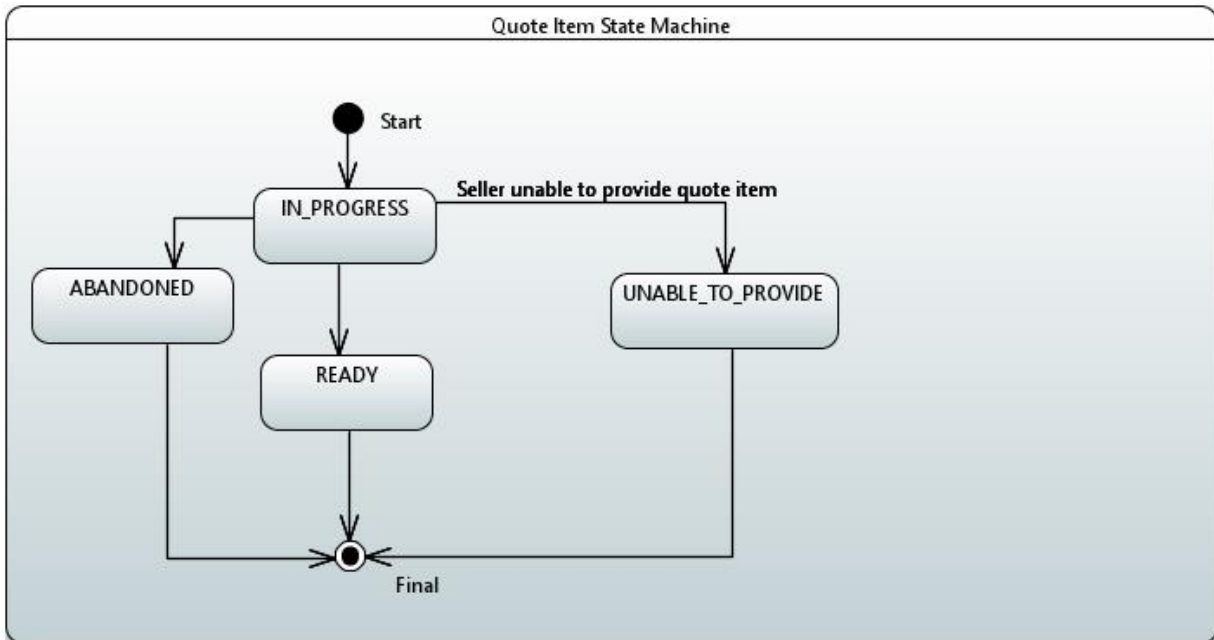


Figure 3 - Quote Item Process Flow

The definitions of the various quote item states are as follows:

State	Description
IN_PROGRESS	The IN_PROGRESS state is when the quote item is currently in the hands of the SP to build it regarding Buyer requirements. The quote item is under construction and could need more information.
UNABLE_TO_PROVIDE	The UNABLE_TO_PROVIDE state is set on a quote item when the Seller cannot provide a quote for this item.
READY	The READY state is where the quote item has been internally approved by the Seller.
ABANDONED	The ABANDONED state is applied to quote items that are in an IN_PROGRESS state when the quote is moved to a terminal state other than READY.

Table 24 - Quote Item State Values

11 References

- [1] Internet Engineering Task Force RFC 2119, *Key words for use in RFCs to Indicate Requirement Levels*, March 1997
- [2] Internet Engineering Task Force RFC 8174, *Ambiguity of Uppercase vs Lowercase in RFC 2119 Key Words*, May 2017
- [3] MEF 10.3, *Ethernet Service Attributes Phase 3*, October 2013
- [4] MEF 12.2, *Carrier Ethernet Network Architecture Framework Part 2: Ethernet Services Layer*, May 2014
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- [6] MEF 50.1, *MEF Services Lifecycle Process Flows*, August 2017
- [7] MEF 51.1, *Operator Services Definitions*, December 2018
- [8] MEF 55, *LSO Reference Architecture*, March 2016
- [9] MEF 57.1, *Ethernet Ordering Technical Specification Business Requirements and Use Cases*, December 2018
- [10] MEF 79, *Address, Service Site, and Product Offering Qualification Management Requirements and Use Cases*, June 2019
- [11] MEF 81, *Product Inventory Management Requirements and Use Cases*, June 2019
- [12] TMF637 TM Forum, *TMF637 Product Inventory Management API REST Specification R16.5.1*, April 2017.