



**MEF 57.1 / J-SPEC-001.1**

**Ethernet Ordering Technical Specification  
Business Requirements and Use Cases**

**Joint Standard**

**December 2018**



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# Table of Contents

|     |  |    |
|-----|--|----|
| 1.  | Abstract .....   | 4  |
| 2.  | Terminology and Acronyms.....                                  | 4  |
| 3.  | Scope .....  | 6  |
| 4.  | Compliance Levels.....   | 7  |
| 5.  | Introduction .....   | 7  |
| 5.1 | Product Order Scenarios.....                                   | 8  |
| 6.  | Ordering Use Cases and Business Process Definitions.....       | 8  |
| 6.1 | High Level Use Cases.....                                      | 8  |
| 6.2 | Order Management Scenarios.....                                | 18 |
| 7.  | Ordering Attributes .....                                      | 21 |
| 7.1 | Access E-Line Product Ordering Attributes.....                 | 22 |
| 7.2 | UNI Ordering Attributes .....                                  | 29 |
| 7.3 | Buyer Billing Information .....                                | 37 |
| 7.4 | Cancel In-Flight Order Use Case.....                           | 38 |
| 7.5 | Disconnect Use Case Attributes .....                           | 39 |
| 7.6 | Query Order Details Use Case Attributes .....                  | 44 |
| 7.7 | Notify Order Status & Complete Order Use Case Attributes ..... | 44 |
| 7.8 | Query Order List Use Case Attributes .....                     | 50 |
| 8.  | Order and Order Item State Diagrams.....                       | 53 |
| 9.  | References .....   | 56 |

# 1 Abstract

This document represents the cumulative work between MEF and ATIS Ordering and Billing Forum (OBF) to identify the common ordering attributes and processes needed to support inter-carrier Product Ordering of Ethernet Services worldwide. This document supports the requirements defined in the MEF Lifecycle Service Orchestration (LSO) Reference Architecture and Framework (MEF 55, "LSO RA") requirements for Ordering over the Sonata interface (Service Provider <-> Partner interactions). Information contained within this document will be utilized by both Buyer and Seller ordering systems for the development of automated API systems.

# 2 Terminology and Acronyms

This section defines the terms used in this document. 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.

The following standards and specifications contain provisions that, through reference in this text, constitute provisions of this Specification. At the time of publication, the editions indicated were valid. All standards and specifications are subject to revision, and parties to agreements based on this Specification are encouraged to investigate the possibility of applying the most recent editions of the standards and specifications indicated below.

| Term                                | Definition  | Reference     |
|-------------------------------------|---|---------------|
| Access E-Line                       | An E-Access Service, based on the O-Line Service definition.  | MEF 51        |
| Application Program Interface (API) | In the context of Lifecycle Service Orchestration (LSO), API describes one of the Management Interface Reference Points based on the requirements specified in an Interface Profile, along with a data model, the protocol that defines operations on the data and the encoding format used to encode data according to the data model. | MEF 55        |
| Buyer                               | Using MEF 55 terminology, a Buyer may be a Customer or a Service Provider who is buying from a Partner. For the purposes of this document, a Buyer is the Service Provider who is ordering from a Partner (aka, Seller).  | This document |
| Buyer Order                         | A commercial document which may be electronically transmitted, consisting of an official offer issued by a Buyer to a Seller. It indicates types, quantities, and agreed prices for products or services.   | This document |
| Business Rule                       | A Seller defined constraint or validation that is implemented as part of the Order acceptance and handling process. Business rules are used to ensure accuracy of Order data and enforce MEF-defined rules in a way that aligns with the product offering specifications.   | This document |
| Class of Service (COS)              | A designation given to one or more sets of performance objectives and associated parameters by the Service Provider.  | MEF 10.3      |
| CLLI™ Code                          | A CLLI™ Code is an eleven character, standardized, geographic identifier which uniquely identifies the geographic location and certain functional categories of equipment.  | ATIS-0300253  |
| Customer                            | A Customer is the organization purchasing, managing, and/or using Connectivity Services from a Service Provider. This may be an end-user business organization, mobile operator, or a partner network operator.   | MEF 55        |

| Term   | Definition   | Reference     |
|--|--|---------------|
| Data Model                                   | A data model is a representation of concepts of interest to an environment in a form that is dependent on data repository, data definition language, query language, implementation language, and/or protocol (typically, but not necessarily, all five).  | This document |
| End Customer                                 | The name of the end (retail) customer for the UNI.   | This document |
| Ethernet Virtual Connection (EVC)            | An association of two or more Ethernet UNIs.   | MEF 4         |
| External Network-to-Network Interface (ENNI) | A reference point representing the boundary between two Operator networks that are operated as separate administrative domains.  | MEF 26.2      |
| In-flight Order                              | <p>An Order is “in-flight” when it is in one of the following Order States, as defined in Section 8 of this document:</p> <ul style="list-style-type: none"> <li>• ACKNOWLEDGED</li> <li>• IN-PROGRESS</li> <li>• PENDING</li> <li>• HELD</li> <li>• CONFIGURED</li> <li>• CONFIRMED</li> <li>• JEOPARDY</li> </ul> <p>When an Order is in any of these states it may be modified by the Buyer and resubmitted to the Seller. When an Order is not in this state, it cannot be modified.</p> | This document |
| Information Model                            | An information model is a representation of concepts of interest to an environment in a form that is independent of data repository, data definition language, query language, implementation language, and protocol.  | This document |
| Interface Profile                            | Defines the structure, behavior, and semantics supporting a specific Management Interface Reference Point as identified in the LSO Reference Architecture (MEF 55). The Interface Profile specification contains all the necessary information to implement the related API, including objects, attributes, operations, notifications, and parameters.   | MEF 55        |
| O-Line Service                               | A General OVC Service that uses a Point-to-Point OVC.  | MEF 51        |
| Operator Virtual Connection (OVC)            | An association of OVC End Points   | MEF 26.2      |
| Order Item                                   | An orderable item that has its own action and lifecycle and is part of an Order. It can relate to the other items within the same Order.   | This document |
| OVC End Points                               | A logical entity at a given External Interface that is associated with a distinct set of frames passing over that External Interface i.e., UNI, ENNI.  | MEF 26.2      |
| Partner                                      | An organization providing Products and Services to the Service Provider (Buyer) in order to allow the Service Provider to instantiate and manage Service Components external to the Service Provider domain.   | MEF 55        |
| Scenario                                     | A narrative of foreseeable interactions of actors and the system under design. A Scenario describes one way that a system is or is envisaged to be used in the context of activity in a defined time-frame.  | Wikipedia     |

| Term                              | Definition  | Reference                         |
|-----------------------------------|---|-----------------------------------|
| Seller                            | Using MEF 55 terminology, a Seller may be a Service Provider or a Partner who is providing service to a Buyer. For the purposes of this document, a Seller is the Partner who is providing the product to the Buyer.  | This document                     |
| Service Component                 | A segment or element of a Service that is managed independently by the Service Provider.<br><br>In the context of Ethernet Ordering, when a Buyer wishes to order only a portion of an Ethernet Service, the portion being ordered is called a “component” or “service component”. For example, a Buyer may wish to order just a UNI without an association to an EVC or OVC. | MEF 55                            |
| Service Level Agreement (SLA)     | The contract between the Customer and Service Provider or Operator specifying the agreed to service level commitments and related business agreements.  | MEF 10.3                          |
| Service Provider                  | The organization providing Ethernet Service(s).   | MEF 10.3                          |
| Service Provider Buyer Identifier | The ID of the Service Provider (Buyer) organization placing the Order.  | This document                     |
| Service Provider (SP) Network     | A network from a Service Provider or network operator supporting the MEF service and architecture models.   | MEF 12.2                          |
| Site                              | A spatial location of an actual or planned structure or set of structures (such as a building, floor, room, cell site, pole, etc.)  | This document                     |
| Standalone UNI                    | In the context of Ethernet Ordering, a Standalone UNI is a request by the Buyer to the Seller for a User Network Interface (UNI) that has no association to an EVC or OVC. These types of Orders are typically done to build out locations in advance of service delivery requirements or to groom network capacity.  | This document                     |
| User Network Interface (UNI)      | The physical demarcation point between the responsibility of the Service Provider and the responsibility of the Customer.   | MEF 10.3 (adapted)                |
| Unified Modeling Language (UML)   | UML is a general-purpose, developmental, modeling language in the field of software engineering that is intended to provide a standard way to visualize the design of a system.   | Object Management Group (OMG) UML |
| Unified Ordering Model (UOM)      | UOM describes a complete set of system documentation using an end-to-end structured methodology. The scope of UOM encompasses business requirements, analysis, design, and implementation.  | ATIS Terminology                  |
| Use Case                          | In UML, Use Cases are a means to capture the requirements of systems, i.e., what systems are supposed to do. Each Use Case’s subject represents a system under consideration to which the Use Case applies. A Use Case is a specification of behavior.  | OMG UML v2.5                      |

Table 1 - Terminology and Acronyms

### 3 Scope

This specification defines the process for MEF Carrier Ethernet order negotiation/management between a Partner/Access Provider (Seller) and Service Provider (Buyer). The Ethernet Ordering specification will be based on MEF defined services and is intended to be used internationally. The requirements for Ethernet Ordering will be developed following a UML process approach which includes, but is not limited to, Business Process Flows, Use Cases, Scenarios, Information Models, and State Machine Diagrams. This specification is limited to the

business process requirements depicted as Use Cases and attribute definitions needed for Ethernet Ordering. It will be the basis of requirements for a Product Order Data Model and API.

## 4 Compliance Levels

The requirements that apply to the functionality of this document are specified in the following sections. Items that are REQUIRED (contain the words MUST or MUST NOT) will be labeled as [Rx]. Items that are RECOMMENDED (contain the words SHOULD or SHOULD NOT) will be labeled as [Dx]. Items that are OPTIONAL (contain the words MAY or OPTIONAL) will be labeled as [Ox].

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in RFC 2119. All key words use upper case, bold text to distinguish them from other uses of the words. Any use of these key words (e.g., may and optional) without [Rx], [Dx] or [Ox] is not normative.

## 5 Introduction

This specification defines the business requirements and process-related guidelines for the Ordering process over the Sonata interface. The Sonata interface is defined in MEF 55 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 document is limited to interactions between these parties; within this document, they are referred to as the “Buyer” and the “Seller”.

To fully define the business interactions associated with inter-carrier ordering, this document is focused on the following key areas: Section 6 defines the Use Cases and Order Management Scenarios, Section 7 defines the specific ordering attributes associated with the product Orders supported in this document and Section 8 provides the State Diagram for Product Ordering. Implementation details will be separately published in an Interface Profile Specification.

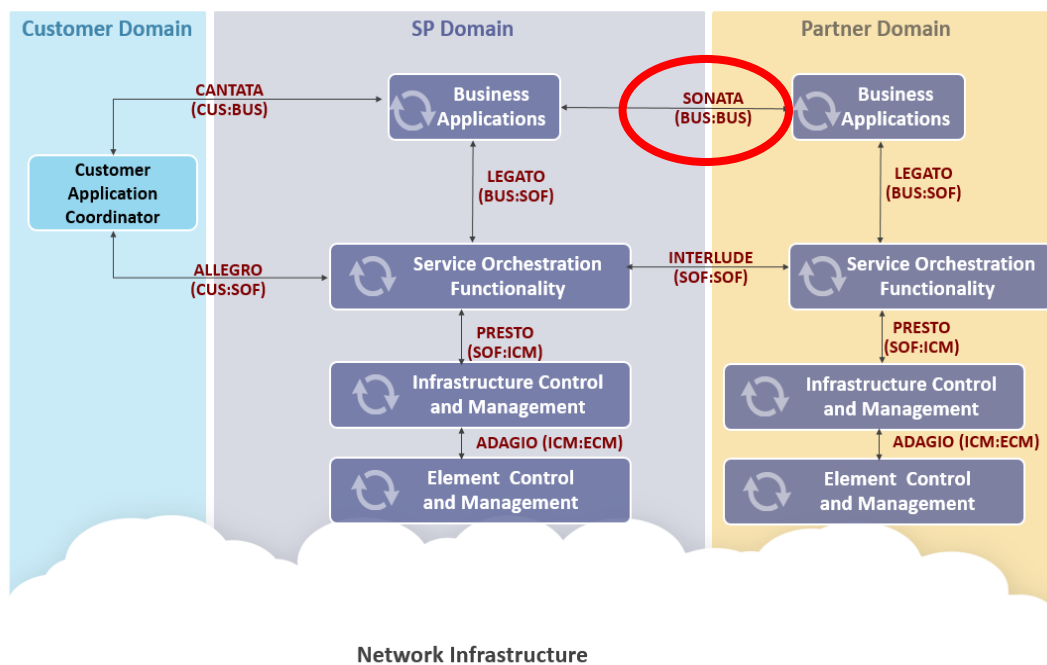


Figure 1 - Lifecycle Service Orchestration Reference Architecture (LSO RA) diagram

Figure 1 depicts the Ethernet Ordering process alignment with the LSO RA, per MEF 55. This document addresses the interactions between the business applications of the Service Provider (“Buyer”) and Partner

domains (“Seller”) required to support the buying and selling of Ethernet Services. Various supporting business functions may be utilized prior to initiation of the ordering process. Those functions are outside the scope of this document.

It is important to note that specifications related to Service Provider-Partner interactions without the submission of a Product Order are also outside the scope of this document. Therefore, if non-Order impacting changes to an Ethernet Service are permitted, those changes could be exchanged over the Interlude interface and would not follow the requirements specified in this document.

## **5.1 Product Order Scenarios**

Product Ordering requirements for the following MEF Ethernet Services and/or service components are supported in this version of the document:

- Access E-Line
- Standalone UNI

In addition, some Use Cases and associated requirements are generic in nature and have been defined in a manner that supports all MEF Ethernet Services. Those requirements which support more than Access E-Line have been noted in the Use Case description.

Future versions of this document will expand the requirements to fully define all MEF Ethernet Services that are ordered via the Sonata interface.

# **6 Ordering Use Cases and Business Process Definitions**

## **6.1 High Level Use Cases**

This section provides the complete set of Use Cases needed to support the ordering of Ethernet Services and expands on the ordering process defined in MEF 50.1 (MEF Services Lifecycle Process Flows). These Use Cases are based on business process standards of interactivity between ordering entities and providers. Each use case drives the need for specific ordering information blocks, and administrative process tracking objects. The specific attributes associated with each Use Case are defined in Section 7. 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 submission of any Ethernet orders.

It is expected that a catalog will be utilized to identify all products and services available for each Buyer. The catalog may provide the ability for a Buyer to purchase an entire product with all associated components as well as the procurement of various elements that comprise that specific service such as the business process of ordering a physical UNI for future use, but not ordering an EVC or OVC to that UNI in the Order itself. The requirements for how a catalog is used within the ordering process are outside the scope of this document.

### **6.1.1 Product Order Management Use Cases**

This section defines the use cases that support the end-to-end lifecycle of Product Ordering of Ethernet Services. The term “service” within this document pertains to the deployed Carrier Ethernet Service realized as a result of a Product Order.



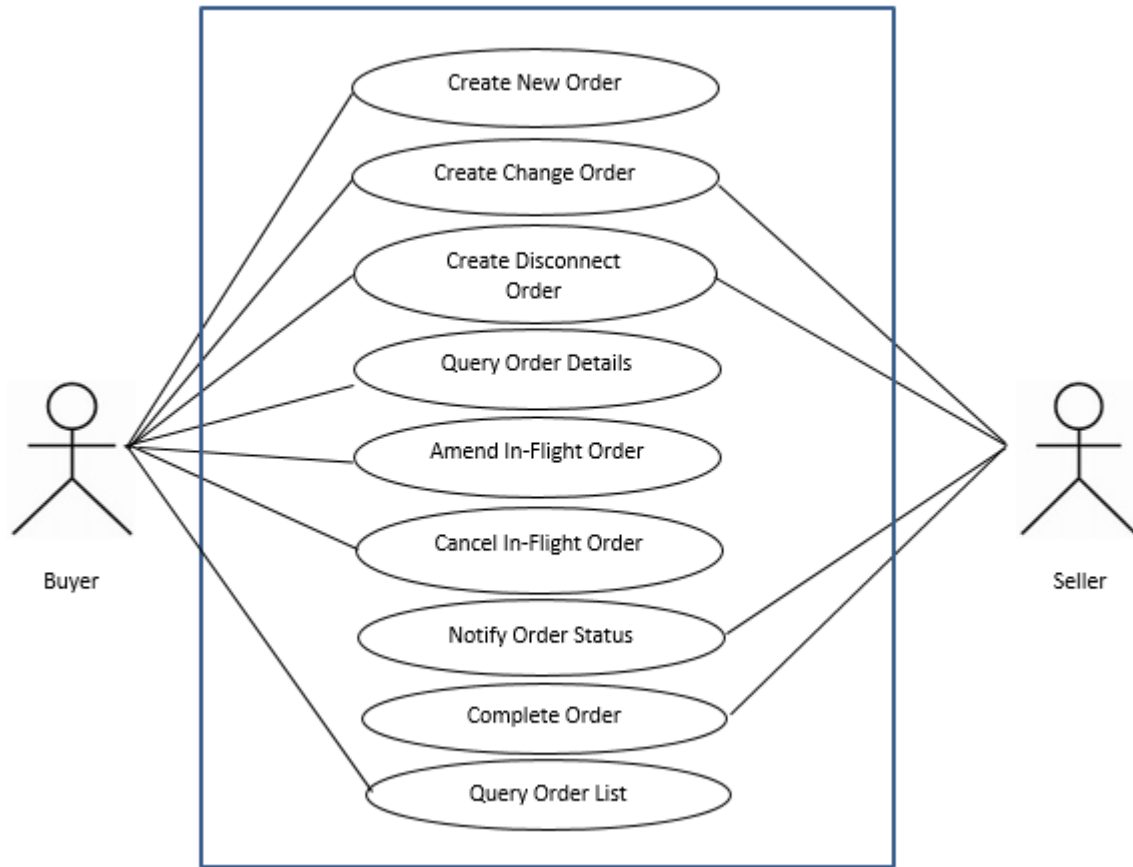


Figure 2 - MEF Product Order Management Use Cases

Figure 2 indicates which party may initiate the process defined in the Use Case.

| Use Case # | Use Case Name           | Use Case Description  |
|------------|-------------------------|---|
| 1          | Create New Order        | A request initiated by the Buyer to order a new product or service component(s).  |
| 2          | Create Change Order     | A request initiated by the Buyer or Seller to request a modification/change to an existing active service or service component(s).                                  |
| 3          | Create Disconnect Order | A request initiated by the Buyer or Seller to terminate (e.g., disconnect) an existing active service(s) or service component(s).                                   |
| 4          | Query Order Details     | A request initiated by the Buyer to query the details associated with a specific Order. This Use Case is only applicable after initiation of Use Case # 1, 2, or 3. |
| 5          | Amend In-Flight Order   | A request initiated by the Buyer to modify/amend an in-flight Order. This Use Case is only applicable after initiation of Use Case # 1, 2, or 3.                    |

|   |                        |  |
|---|------------------------|--|
| 6 | Cancel In-Flight Order | A request initiated by the Buyer to cancel an in-flight Order. This Use Case is only applicable after initiation of Use Case # 1, 2, or 3.   |
| 7 | Notify Order Status    | A notification initiated by the Seller to the Buyer providing subsequent status information on Orders such as service delivery confirmation, error, and/or jeopardy messages. This Use Case is only applicable after initiation of Use Case # 1, 2, or 3.        |
| 8 | Complete Order         | A notification initiated by the Seller to the Buyer to close an in-flight Order. This use case notifies the Buyer the service is now activated, and no further actions are required. This Use Case is only applicable after initiation of Use Case # 1, 2, or 3. |
| 9 | Query Order List       | A request initiated by the Buyer to request a list of Orders that match the requested criteria. This Use Case is only applicable after initiation of Use Case # 1, 2, or 3.  |

Table 2 - MEF Product Order Management Use Case Summary

### 6.1.1.1 Order Management Use Case Descriptions

This section defines the details for each of the order management Use Cases.

| Field             | Description  |
|-------------------|--|
| Use Case #        | 1  |
| Use Case Name     | Create New Order   |
| Description       | A request initiated by the Buyer to order a new product or service component(s).   |
| Actors            | Buyer, Seller  |
| Pre-Conditions    | <ol style="list-style-type: none"> <li>1. Buyer must be authorized to purchase products from the Seller (Buyer on-boarded).</li> <li>2. Buyer may have completed pre-order inquiries/serviceability request.</li> <li>3. Buyer may have completed a quoting process to obtain pricing information.</li> </ol>  |
| Process Steps     | <ol style="list-style-type: none"> <li>1. The Buyer initiates and submits a new Order.</li> <li>2. The Seller's gateway receives a new Order.</li> <li>3. The Seller validates the new Order.</li> <li>4. The Seller accepts the new Order and provides a response with an assigned Seller Order ID. The state of the Order is set to "Acknowledged" by the Seller.</li> </ol> |
| Post-Conditions   | <ol style="list-style-type: none"> <li>1. The "Acknowledged" order is ready for processing including additional business rule validation.</li> <li>2. Seller initiates order processing and notifies the Buyer of commitment to provide the requested product by a specific date.</li> </ol>   |
| Alternative Paths | <ol style="list-style-type: none"> <li>1. If fatal errors are encountered in the validation step, the Seller returns all identified errors in a reject response and the Buyer may submit a new Order. Fatal errors may include validations such as malformed request (invalid payload), software application</li> </ol>  |

|             |  |
|-------------|--|
|             | is not available and/or security/authentication violation failures. The state of the Order is set to "Rejected" by the Seller.   |
| Assumptions | <ol style="list-style-type: none"> <li>1. The electronic method for sending the Order will be the same as the electronic method for sending the responses.</li> <li>2. The Buyer has determined target Seller (Partner/Access Provider). Partner selection is out-of-scope.</li> <li>3. The Buyer and the Seller have established a partnership agreement (which might include ENNI inventory).</li> </ol> |
| References  | ATIS/OBF Use Case Mapping: Service Request Placement/Pre-Validation (UOM-ASR Volume I)   |

| Field           | Description  |
|-----------------|--|
| Use Case #      | 2  |
| Use Case Name   | Create Change Order  |
| Description     | <p>A request initiated by the Buyer or Seller to order a modification/change to an existing active product or service component(s), such as:</p> <ul style="list-style-type: none"> <li>• Adding or removing components to or from an existing service (e.g. adding/removing a leg to an existing EPL)</li> <li>• Modifying attributes of an existing service or service components (e.g. EVC bandwidth change, Telecommunication Service Priority (TSP)/restoration priority identifier).</li> <li>• Modifying service demarcation point of an existing service (e.g. rehome EVC's from one UNI to another UNI, change physical port)</li> <li>• Administrative changes to an existing service (e.g. changing billing address of service).</li> </ul> <p>Note: this is a list of possible scenarios; other scenarios may exist.</p> <p>This use case supports all MEF Services, not just Access E-Line.</p> |
| Actors          | Buyer, Seller  |
| Pre-Conditions  | <ol style="list-style-type: none"> <li>1. The product being modified is already allocated or activated and in-service.</li> <li>2. An authorized Buyer/Seller must initiate the change of an in-service product.</li> <li>3. Buyer may have completed pre-order inquiries/serviceability request.</li> <li>4. Buyer may have completed a quoting process to obtain pricing information.</li> </ol>   |
| Process Steps   | <ol style="list-style-type: none"> <li>1. The Buyer/Seller initiates a change Order.</li> <li>2. The Seller's gateway receives a change Order.</li> <li>3. The Seller validates the change Order.</li> <li>4. The Seller accepts the change Order and provides a response with an assigned Seller ID. The state of the Order is set to "Acknowledged" by the Seller.</li> </ol>  |
| Post-Conditions | <ol style="list-style-type: none"> <li>1. The "Acknowledged" Order is ready for processing including additional business rule validation.</li> </ol>   |

|                   |   |
|-------------------|---|
|                   | <ol style="list-style-type: none"> <li>2. Seller initiates order processing and notifies the Buyer of commitment to provide the requested product by a specific date.</li> </ol>  |
| Alternative Paths | <ol style="list-style-type: none"> <li>1. If fatal errors are encountered in the validation step, the Seller returns all identified errors in a reject response and the Buyer may submit a new change Order. Fatal errors may include validations such as malformed request (invalid payload), software application is not available and/or security/authentication violation failures. The state of the Order is set to "Rejected" by the Seller.</li> </ol> |
| Assumptions       | <ol style="list-style-type: none"> <li>1. The electronic method for sending the Order will be the same as the electronic method for sending the responses.</li> <li>2. The Seller may provide business requirements to the Buyer stipulating rules for the submission of a Change Order and submission of multiple Change Orders.</li> </ol>  |
| References        | ATIS/OBF Use Case Mapping: Service Request Placement/Pre-Validation (UOM-ASR Volume I)  |

| Field             | Description   |
|-------------------|---|
| Use Case #        | 3   |
| Use Case Name     | Create Disconnect Order   |
| Description       | <p>A request initiated by the Buyer or Seller to terminate (e.g., disconnect) an existing active service(s) or service component(s).</p> <p>This use case supports all MEF Services, not just Access E-Line.</p>  |
| Actors            | Buyer, Seller   |
| Pre-Conditions    | <ol style="list-style-type: none"> <li>1. The service(s) being disconnected is/are already activated and in-service.</li> <li>2. An authorized Buyer/Seller must initiate the disconnect of an in-service product.</li> </ol>   |
| Process Steps     | <ol style="list-style-type: none"> <li>1. The Buyer/Seller initiates a disconnect Order with order items of the same or different MEF Services. It is recommended that no more than 20 order items be submitted on a single disconnect Order.</li> <li>2. The Seller's gateway receives a Disconnect Order.</li> <li>3. The Seller validates the disconnect Order and associated order items.</li> <li>4. The Seller accepts the disconnect Order and provides a response with an assigned Seller Order ID. The state of the Order is set to "Acknowledged" by the Seller.</li> </ol> |
| Post-Conditions   | <ol style="list-style-type: none"> <li>1. The "Acknowledged" Order is ready for processing including additional business rule validation.</li> <li>2. Seller initiates order process and notifies Buyer of commitment to provide the requested product by a specific date.</li> </ol>   |
| Alternative Paths | <ol style="list-style-type: none"> <li>1. If fatal errors are encountered in the validation step, the Seller returns all identified errors in a reject response and the Buyer may submit a new disconnect Order. Fatal errors may include validations such as malformed request (invalid payload), determination of non-eligible order items, software application is not available and/or security/authentication violation failures. The state of the Order is set to "Rejected" by the Seller.</li> </ol>  |

|             |   |
|-------------|---|
| Assumptions | <ol style="list-style-type: none"> <li>1. The electronic method for sending the Order will be the same as the electronic method for sending the responses.</li> <li>2. Any order item on the disconnect Order will not have another service associated to it.</li> <li>3. Individual Seller business rules will enforce any limit on the amount of order items that can be requested for disconnect on a single Order.</li> </ol> |
| References  | ATIS/OBF Use Case Mapping: Service Request Placement/Pre-Validation (UOM-ASR Volume I)  |

| Field             | Description  |
|-------------------|--|
| Use Case #        | 4  |
| Use Case Name     | Query Order Details  |
| Description       | <p>A request initiated by the Buyer to query the details associated with a specific Order. This Use Case is only applicable after initiation of Use Case # 1, 2, or 3.</p> <p><u>This use case supports all MEF Services, not just Access E-Line.</u></p>                        |
| Actors            | Buyer, Seller  |
| Pre-Conditions    | <ol style="list-style-type: none"> <li>1. The Buyer must be authorized to perform the inquiry.</li> <li>2. An Order exists in the Seller's system and the Order is available for online retrieval.</li> </ol>  |
| Process Steps     | <ol style="list-style-type: none"> <li>1. Buyer initiates a query request to the Seller using the Seller Order ID.</li> <li>2. The Seller responds to the query request with the latest view of the Order and the associated order items.</li> </ol>                             |
| Post-Conditions   | <ol style="list-style-type: none"> <li>1. The Buyer receives the appropriate response.</li> </ol>  |
| Alternative Paths | <ol style="list-style-type: none"> <li>1. If errors are encountered, the Seller returns all identified errors in a reject response and the Buyer may submit a new query.</li> <li>2. If the Seller order "ID" is not found, the Buyer must receive a reject response.</li> </ol> |
| Assumptions       | None   |
| References        | N/A  |

| Field         | Description  |
|---------------|--|
| Use Case #    | 5  |
| Use Case Name | Amend In-Flight Order  |
| Description   | A request initiated by the Buyer to modify/amend an in-flight Order. This Use Case is only applicable after initiation of Use Case # 1, 2, or 3. |

|                   |   |
|-------------------|---|
| Actors            | Buyer, Seller   |
| Pre-Conditions    | 1. An in-flight Order exists in the Seller's system.  |
| Process Steps     | <ol style="list-style-type: none"> <li>1. The Buyer initiates a request to amend an existing active Order. <ol style="list-style-type: none"> <li>a. The Buyer initiates a request to amend an in-flight Order.</li> <li>b. The Seller's gateway receives the request.</li> <li>c. The Seller validates the request.</li> <li>d. The Seller accepts the amended Order and provides a response with the previously assigned Seller Order ID. The state of the Order is set to "Acknowledged" by the Seller.</li> </ol> </li> </ol>   |
| Post-Conditions   | <ol style="list-style-type: none"> <li>1. The "Acknowledged" amended Order is ready for processing including additional business rule validation.</li> <li>2. Seller initiates the order process and notifies the Buyer of commitment to provide the requested product by a specific date.</li> </ol>   |
| Alternative Paths | <ol style="list-style-type: none"> <li>1. If fatal errors are encountered in the validation step, the Seller returns all identified errors in a reject response. Fatal errors may include validations such as malformed request (invalid payload), software application is not available and/or security/authentication violation failures. The state of the Order is set to "Rejected" by the Seller.</li> <li>2. The Buyer either corrects the errors and re-sends the entire Order with a new Version number or sends a cancellation Order to the Seller.</li> <li>3. The Seller may determine that the in-flight Order cannot be amended and may reject the request (e.g., past the "point of no return").</li> </ol> |
| Assumptions       | 1. The electronic method for sending the Order will be the same as the electronic method for sending the responses.   |
| References        | ATIS/OBF Use Case Mapping: Perform Service Request Supplement (UOM-ASR Volume I)  |

| Field          | Description  |
|----------------|--|
| Use Case #     | 6  |
| Use Case Name  | Cancel In-Flight Order   |
| Description    | A request initiated by the Buyer to cancel an in-flight Order. This Use Case is only applicable after creation of Order in Use Case # 1, 2, or 3. <u>This use case supports all MEF Services, not just Access E-Line.</u>  |
| Actors         | Buyer, Seller  |
| Pre-Conditions | 1. An in-flight Order exists in the Seller's system.   |
| Process Steps  | <ol style="list-style-type: none"> <li>1. The Buyer initiates a cancellation request to an in-flight Order.</li> <li>2. The Seller's gateway receives the cancellation request.</li> <li>3. The Seller validates the cancellation request.</li> <li>4. The Seller accepts the cancellation request and provides a response with the previously assigned Seller Order ID. The state of the Order is set to "Acknowledged" by the Seller.</li> </ol> |

|                   |   |
|-------------------|---|
|                   | <ol style="list-style-type: none"> <li>5. The “Acknowledged” Order is ready for processing including additional business rule validation.</li> <li>6. Seller initiates the cancellation process and changes the state to “Assessing Cancellation” and “Pending Cancellation” as it moves through the cancel process.</li> </ol>   |
| Post-Conditions   | <ol style="list-style-type: none"> <li>1. Once the Seller has completed the cancellation process, the state is changed to “Cancelled”, and the Buyer is notified of the cancellation.</li> </ol>  |
| Alternative Paths | <ol style="list-style-type: none"> <li>1. If errors are found prior to Order processing, the Seller returns an error response. The state of the Order is set to “Rejected” by the Seller. If errors are found during Seller processing steps, the Order is set to “Pending” and the errors are returned to the Buyer.</li> <li>2. The Seller may determine that the in-flight Order cannot be cancelled and may reject the request. The state of the Order is set to “Rejected” by the Seller.</li> <li>3. The Buyer either corrects the errors and re-sends a cancellation request or sends an Order following the Amend In-Flight Order Use Case to the Seller.</li> <li>4. If the Seller cancels the in-flight Order, a notification is sent to the Buyer per the process defined in Use Case #7 (Notify Order Status).</li> </ol> |
| Assumptions       | <ol style="list-style-type: none"> <li>1. The electronic method for sending the Order will be the same as the electronic method for sending the responses.</li> </ol>   |
| References        | ATIS/OBF Use Case Mapping: Service Request Placement/Pre-Validation (UOM-ASR Volume I)  |

| Field          | Description   |
|----------------|---|
| Use Case #     | 7   |
| Use Case Name  | Notify Order Status   |
| Description    | <p>A notification initiated by the Seller to the Buyer providing subsequent status information on “Orders such as service delivery confirmation (commitment), error, Seller-initiated cancellation and/or jeopardy messages. This Use Case is only applicable after creation of Order in Use Case # 1, 2, or 3.</p> <p><u>This use case supports all MEF Services, not just Access E-Line.</u></p>  |
| Actors         | Buyer, Seller   |
| Pre-Conditions | <ol style="list-style-type: none"> <li>1. An in-flight Order exists in the Seller's system, and the Seller has initiated the validation process.</li> </ol>   |
| Process Steps  | <ol style="list-style-type: none"> <li>1. The Seller initiates a notification based on any of the following events. The Buyer receives the Seller initiated notifications for any change in order state or when significant milestones have occurred. The notification types are as follows: <ol style="list-style-type: none"> <li>a. Held Orders (error condition is present)</li> <li>b. Status Update</li> <li>c. Failed</li> <li>d. Configured</li> <li>e. Order confirmation (commitment)</li> <li>f. Jeopardy condition</li> <li>g. Seller-initiated cancellation</li> <li>h. Completed</li> </ol> </li> </ol> |

|                   |   |
|-------------------|---|
|                   | Additional details on each notification type is further defined in Section 6.2.2.   |
| Post-Conditions   | <ol style="list-style-type: none"> <li>1. The Buyer may submit a correction or modification via the Amend In-Flight Order Use Case if the Order is not completed or cancelled.</li> <li>2. The Seller may submit a cancellation via this Use Case.</li> </ol> |
| Alternative Paths | None  |
| Assumptions       | <ol style="list-style-type: none"> <li>1. The electronic method for sending the notification will be the same as the electronic method for sending the order response.</li> <li>2. Multiple notifications are possible during the Order lifecycle.</li> </ol> |
| References        | ATIS/OBF Use Case Mapping: Clarification/Notification Request   |

| Field             | Description   |
|-------------------|---|
| Use Case #        | 8   |
| Use Case Name     | Complete Order  |
| Description       | <p>A notification initiated by the Seller to the Buyer to close an in-flight Order. This use case notifies the Buyer the service is now activate and no further actions are required. This Use Case is only applicable after creation of Order in Use Case # 1, 2, or 3.</p> <p><u>This use case supports all MEF Services, not just Access E-Line.</u></p> |
| Actors            | Buyer, Seller   |
| Pre-Conditions    | <ol style="list-style-type: none"> <li>1. All components of the Order are in-service.</li> </ol>  |
| Process Steps     | <ol style="list-style-type: none"> <li>1. The Seller notifies the Buyer that the Order is complete. The state of the Order is set to "Completed" by the Seller.</li> <li>2. The Buyer received the completion notification.</li> </ol>  |
| Post-Conditions   | <ol style="list-style-type: none"> <li>1. No further updates are permitted on this Order.</li> </ol>  |
| Alternative Paths | None  |
| Assumptions       | <ol style="list-style-type: none"> <li>1. The electronic method for sending the notification will be the same as the electronic method for sending the Order response.</li> </ol>   |
| References        | ATIS/OBF Use Case Mapping: Perform Completion (UOM-ASR Volume I)  |



| Field             | Description   |
|-------------------|---|
| Use Case #        | 9   |
| Use Case Name     | Query Order List  |
| Description       | <p>A request initiated by the Buyer to request a list of Orders that match the requested criteria. This Use Case is only applicable after initiation of Use Case # 1, 2, or 3.</p> <p><u>This use case supports all MEF Services, not just Access E-Line.</u></p>   |
| Actors            | Buyer, Seller   |
| Pre-Conditions    | <ol style="list-style-type: none"> <li>1. The Buyer must be authorized to perform the inquiry.</li> <li>2. An Order exists in the Seller's system, and the Order is available for online retrieval.</li> </ol>  |
| Process Steps     | <ol style="list-style-type: none"> <li>1. The Buyer initiates a query request to the Seller using any of the following combination of attributes: <ul style="list-style-type: none"> <li>• Date Range</li> <li>• Site Company Name</li> <li>• Site Customer Name</li> <li>• Site Name</li> <li>• Project ID</li> <li>• Address</li> <li>• Order State.</li> </ul> <p>Note: Only one value is permitted for each of the query elements.</p> </li> <li>2. The Seller responds to the query request with a list of Order IDs, the state of the Order and a subset of Order attributes (see Section 7.6 for list of attributes).</li> </ol>   |
| Post-Conditions   | <ol style="list-style-type: none"> <li>1. The Buyer receives the appropriate response.</li> <li>2. The Buyer may initiate Use Case 4 to obtain additional Order information.</li> </ol>   |
| Alternative Paths | <ol style="list-style-type: none"> <li>1. If errors are encountered, the Seller returns all identified errors in a reject response and the Buyer may submit a new query.</li> <li>2. If the quantity of records exceeds a Seller's policy, the Seller must choose to respond with either: <ul style="list-style-type: none"> <li>• an empty list and message that indicates the result set is too large and submit a new more specific query or</li> <li>• 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.</li> </ul> </li> <li>3. If the query does not find any matching records, then the Seller will respond with an indication of this result.</li> </ol> |
| Assumptions       | None  |
| References        | ATIS/OBF Use Case Mapping: Retrieve Service Request Information (UOM-ASR Volume I)  |

## 6.2 Order Management Scenarios

The following Ordering scenarios are included in this version of the document.

### 6.2.1 Create New Order Scenarios

#### 6.2.1.1 Ordering a UNI from a Partner

The below figure and component circled in red illustrates the scenario where a wholesale customer (Buyer) is ordering a UNI at an End Customer location from a partner (Seller) as defined in MEF 10.3, Ethernet Service Attributes.

In this version of the document, ordering of a standalone UNI is to support an Access E-Line that has all CE-VLAN IDs mapped to the OVC endpoint at the UNI.

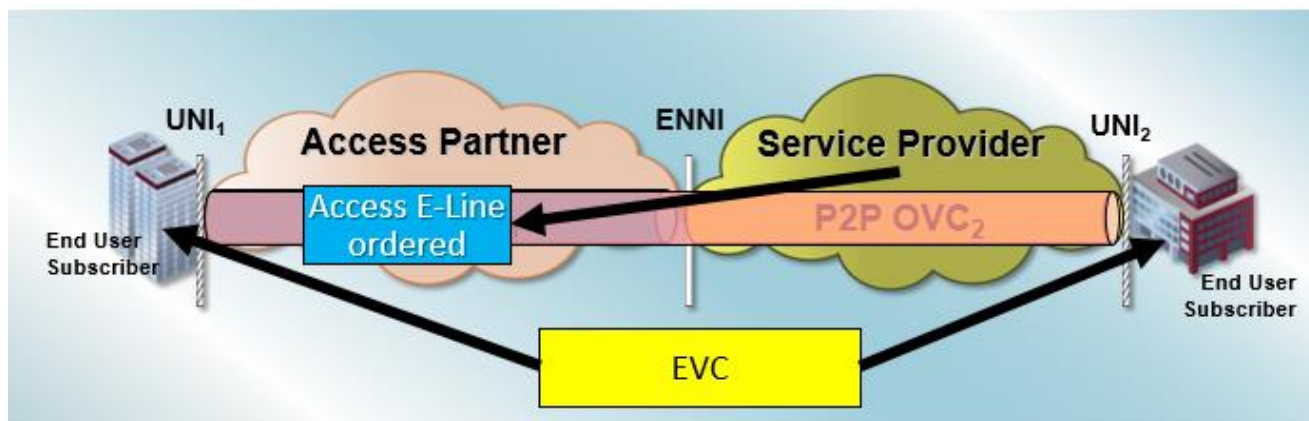


Figure 3 - Ordering a UNI Scenario

#### 6.2.1.2 Ordering an Access E-Line from a single Partner

This scenario illustrates where a Buyer orders an Access E-Line from one SP Operator/Partner (Seller). When ordering an Access E-Line, it is possible to order both the UNI and the OVC or just order the OVC connection between an existing UNI and an existing ENNI. It is assumed that the ENNI is already existing in the network and ready to accept traffic.

Ordering of an Access E-Line is supported when all CE-VLAN IDs map to the OVC endpoint at the UNI as well as when only some CE-VLAN IDs map to the OVC endpoint.

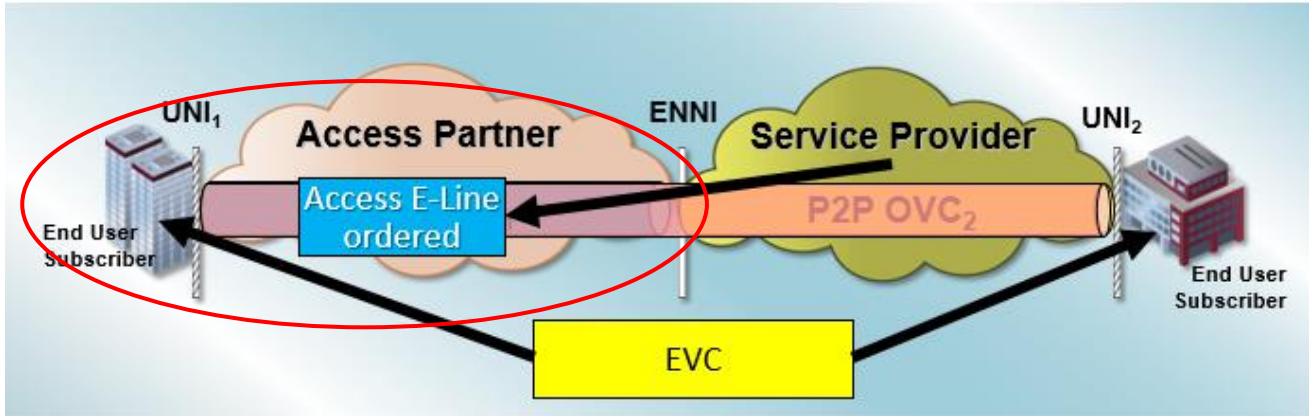


Figure 4 - Ordering an Access E-Line Scenario

Below is the Figure from MEF 51, OVC Services Definitions, which depicts various examples of Access E-Line configurations. This specification supports ordering of these scenarios.

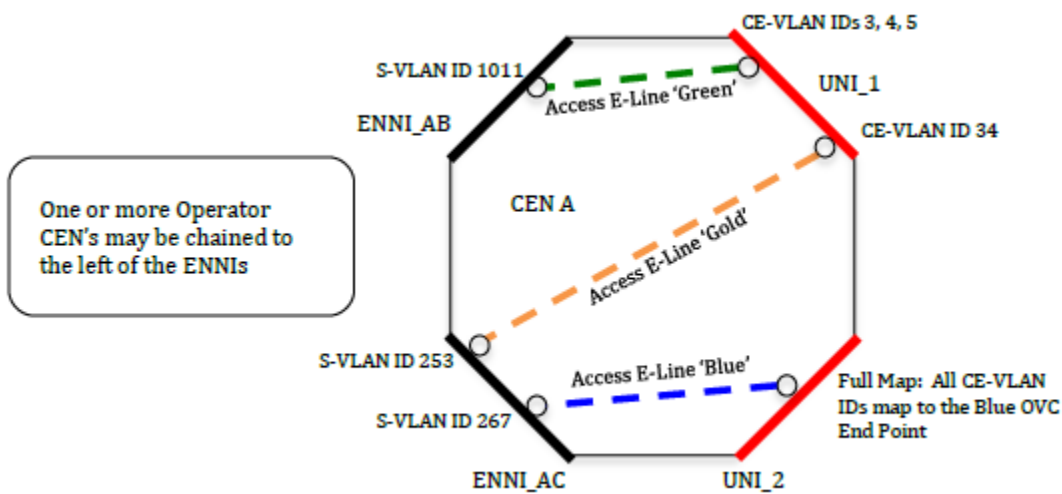


Figure 5 – Example of SP Network with Three Access E-Line Services

## 6.2.2 Seller-Initiated Notifications

During the life cycle of an Order, various notifications are sent from the Seller to the Buyer. These notifications are aligned with the Order State Diagram and are categorized as follows (details on the attributes associated with each Notification Type are contained in Section 7.7):

| Notification Type | Notification Purpose   | Notification Corrective Action   | Key Attributes  |
|-------------------|--|--|---|
| HELD              | This notification is used to communicate Error Message(s) to the Buyer. The HELD Notification MUST be sent any time that an error must be communicated to the Buyer. | Buyer may be required to submit a corrected Order as a new version, following the steps defined in the | Buyer Purchase Order Number, Buyer Order Version, Corrected Order Expected, Order |

|              |  |   |   |
|--------------|--|---|---|
|              | It is expected that each notification contains a complete listing of errors and the Buyer should treat each incremental notification as the current Order state, replacing any previous notification.  | Amend In-flight Order Use Case.   | State, and Order Message(s)   |
| STATE UPDATE | <p>Conveys changes in Order State that are not covered by other specific notification types. These changes are communicated via a STATE_UPDATE Notification. This is limited to informational types of information and no corrective action on the part of the Buyer is expected.</p> <p>This is an OPTIONAL notification within the Order process. The following Order States that are applicable to this notification:</p> <ul style="list-style-type: none"> <li>• ACKNOWLEDGED</li> <li>• REJECTED</li> <li>• IN PROGRESS</li> <li>• PENDING</li> <li>• ASSESSING_CANCELLATION</li> <li>• PENDING_CANCELLATION</li> <li>• PARTIAL</li> </ul> | None  | Buyer Purchase Order Number, Buyer Order Version, Order State, and Notes  |
| FAILED       | <p>This notification MUST be used to notify the Buyer that the Seller is unable to deliver the service as requested.</p> <p>No further action is permitted on the Order after this notification</p>  | None  | Buyer Purchase Order Number, Buyer Order Version, and Failed Date   |
| CONFIGURED   | <p>Prior to confirming the Order is committed for delivery, the Seller MAY elect to notify the Buyer of configuration information such as Billing Account Number, Seller UNI ID, Seller ENNI ID, Seller OVC ID and ENNI SVLAN ID for the Order.</p> <p>This is an OPTIONAL notification within the Order process.</p>  | None  | Buyer Purchase Order Number, Buyer Order Version, Billing Account Number, applicable Seller UNI ID(s), Seller ENNI ID, Seller OVC ID, and/or ENNI SVLAN ID(s) for the Order                           |
| CONFIRMED    | <p>This notification MUST be used to notify the Buyer that the Seller has reached the point in the Order lifecycle that the Order is committed for delivery. This notification provides the Expected Completion Date as well as configuration details noted in the "CONFIGURED" notification.</p>  | None  | Buyer Purchase Order Number, Buyer Order Version, Expected Completion Date, Billing Account Number, applicable Seller UNI ID(s), Seller ENNI ID, Seller OVC ID, and/or ENNI SVLAN ID(s) for the Order |
| JEOPARDY     | <p>This notification is used when the Seller believes that a deliverable or deliverables may be missed. The notification SHOULD contain a reason and an indication if the Buyer must submit a correction Order.</p>  | <p>The Buyer may be required to correct the Order and respond with a corrected Order with a new Buyer Order Version. Optionally, the Buyer could elect to cancel or modify the Order.</p> | Buyer Purchase Order Number, Buyer Order Version, Order Message including whether the Seller expects the Buyer to amend the in-flight Order   |

|           |   |   |   |
|-----------|---|---|---|
| CANCELLED | <p>This notification MUST be used to notify the Buyer that the Seller has cancelled the Order. It MAY include a cancellation reason as part of the notification. This notification is not applicable when the Order state is COMPLETED.</p> <p>No further action is permitted on the Order after this notification.</p> | <p>The Buyer may resubmit a corrected Order as a new Order (i.e., new Buyer Purchase Order Number). No changes may be submitted on the cancelled Order.</p> | <p>Buyer Purchase Order Number, Buyer Order Version, Cancellation Date, and Cancellation Reason</p>   |
| COMPLETED | <p>This notification is the last in the Order life cycle and MUST be used when the Order has been fully completed; therefore, no further action may be taken against this Order. The Seller will mark the Order as Complete in their Order Management system.</p>   | <p>None</p>   | <p>Buyer Purchase Order Number, Buyer Order Version, Completion Date, Billing Account Number, applicable Seller UNI ID(s), Seller ENNI ID, Seller OVC ID, and/or ENNI SVLAN ID(s) for the Order</p> |

*Table 3 – Seller-Initiated Notifications (Use Case 7)*

## 7 Ordering Attributes

This section identifies the attributes needed for each of the ordering Use Cases defined above. Many of these attributes are new to MEF specifications as they pertain to the operations functions in a Buyer and/or Seller organization and are used to enable inter-carrier communication. The “Requirements” specified below are only defined in the context of Ordering; all characteristics of MEF-defined attributes should be referenced in the appropriate MEF Technical Specification document (MEF 26.1, MEF 26.2, MEF 10.3 and MEF 51 as examples). Where the attribute is not defined in an existing MEF specification, this document will fully define the attribute characteristics.

It is important to note that this section defines the superset of all MEF-defined attributes needed to support Product Ordering for the Use Cases defined in this document. It is possible that individual Sellers may require additional attributes for their unique product offerings and the ability to extend the technical implementation of these requirements to allow for Buyer-Seller specific attributes should be accommodated but not mandated by the implementation design.

## 7.1 Access E-Line Product Ordering Attributes

The below table defines the attributes associated with the Create New Order (Use Case 1), Create Change Order (Use Case 2) and Amend In-Flight Order (Use Case 5) for an Access E-Line Order. If the Access E-Line Order is also requesting the creation of a New UNI, the below table includes the ability to reference another Order Item that contains the UNI details. The attributes required to order a UNI are identified in Section 7.2.

| Order Attribute                     | Description   | Data Type   | Max Length | Access-E-Line |                       |              | Requirements  |
|-------------------------------------|---|-------------|------------|---------------|-----------------------|--------------|---|
|                                     |   |             |            | New Order     | Amend In-Flight Order | Change Order |   |
| Order Header Information            |   |             |            |               |                       |              |   |
| Order ID                            | Unique identifier for the order that is generated by the Seller when the order is initially accepted via an API.  | String      | 45         | Prohibited    | Required              | Prohibited   | This value MUST be provided by the Seller on all response messages. This value MUST remain the same for the life of the Order.                            |
| Buyer (Service Provider) ID         | A Party Role played by an Individual or an Organization that buys products and services from a Seller. Specifically, the ID of the Service Provider (Buyer) organization placing the order. | String      | 25         | Required      | Required              | Required     | This value MUST match the value used on the New Order request when initiating any other Ordering Use Case.  |
| Seller (Partner/Access Provider) ID | A Party Role played by an organization that provides products and services to a Buyer. Specifically, the ID of the Partner/Access Provider (Seller) organization receiving the order.       | String      | 25         | Required      | Required              | Required     | This value MUST match the value used on the New Order request when initiating any other Ordering Use Case.  |
| Buyer Purchase Order Number         | A number that uniquely identifies an order within the Buyer's enterprise.   | String      | 16         | Required      | Required              | Required     | The original value MUST be maintained for the life of the Order. This value may be reused after two years from the completion date of the original order. |
| Buyer Order Version                 | The version number that the Buyer uses to refer to this particular version of the order.  | String      | 2          | Required      | Required              | Required     | This value MUST be assigned by the Buyer and retained by the Seller.  |
| Buyer Request Date                  | Date when the order was submitted by the Buyer to the Seller  | dateTime    |            | Required      | Required              | Required     | This value MUST be assigned by the Buyer when submitting an Order.  |
| Order Activity                      | The type of order, as defined by the business (e.g., install, change, disconnect).  | Enumeration |            | Required      | Required              | Required     | The valid values for this field are:<br>• INSTALL<br>• CHANGE<br>• DISCONNECT   |
| Desired Responses                   | The type of order responses that the buyer wishes to receive from the Seller  | Enumeration |            | Required      | Required              | Required     | The valid values for this field are:<br>• CONFIRMATION_AND_ENGINEERING_DESIGN<br>• CONFIRMATION_ONLY<br>• NONE  |
| Project ID                          | An identifier that is used to group Orders that represent a unit of functionality that is important to a Buyer. A Project can be used to relate multiple Orders together.                   | String      | 16         | Optional      | Optional              | Optional     | This value MAY be assigned by the Buyer/Seller to identify a project the order is associated with.  |
| Related Buyer Purchase Order Number | Identifies the Buyer Purchase Order Number that is related to this order.   | String      | 16         | Optional      | Optional              | Optional     |   |

| Order Attribute   | Description  | Data Type | Max Length | Access-E-Line |                       |              | Requirements   |
|---|--|-----------|------------|---------------|-----------------------|--------------|--|
|   |  |           |            | New Order     | Amend In-Flight Order | Change Order |  |
| Requested Completion Date   | Identifies the Buyer's desired due date (requested delivery date) formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00)                               | dateTime  |            | Required      | Required              | Required     | This value MUST be assigned by the Buyer to identify the requested completion date.  |
| Requested Start Date  | If specified, identifies the Buyer's desired date for order processing to start. Formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00)                | dateTime  |            | Optional      | Optional              | Optional     |  |
| Expedite/Priority Indicator   | Indicates that expedited treatment is requested and any charges generated in provisioning this request (e.g., additional engineering charges or labor charges if applicable) will be accepted. | boolean   |            | Required      | Required              | Required     | Valid Values = True or False<br>Default Value = False  |
| Expedite/Priority Value   | An integer that specifies that expedited treatment is to be provided in a specific priority.   | Integer   |            | Conditional   | Conditional           | Conditional  | This field will be ignored if the Expedite/Priority Indicator is False.<br><br>The valid values and the business/operational rules for this field will be defined by the Seller as part of the contracting or on-boarding process. |
| Telecommunication Service Priority/<br>Restoration Priority   | Within the United States, indicates the provisioning and restoration priority as defined under the TSP Service Vendor Handbook.  | String    | 12         | Optional      | Optional              | Optional     | The valid values are defined in ATIS OBF document: ATIS-0404001  |
| <b>Buyer Billing information</b>  |  |           |            |               |                       |              |  |
| Include Buyer Billing Information when it applies to all Order Items within the Order. See Section 7.3 for full list of attributes and conditionality. When the information is provided at Order level, it is PROHIBITED from being provided at Order Item level. |  |           |            |               |                       |              |  |
| <b>/Buyer Billing information</b>   |  |           |            |               |                       |              |  |
| <b>Buyer Order Contact</b>  |  |           |            |               |                       |              |  |
| Buyer Order Contact Name  | Identifies the name of the person or office that is buying the product.  | String    | 50         | Required      | Required              | Required     |  |
| Buyer Order Contact Telephone Number  | Identifies the telephone number (excluding extension) of the Buyer Order Contact.  | String    | 15         | Required      | Required              | Required     |  |

| Order Attribute                                    | Description   | Data Type | Max Length | Access-E-Line |                       |              | Requirements  |
|--|---|-----------|------------|---------------|-----------------------|--------------|---|
|  |   |           |            | New Order     | Amend In-Flight Order | Change Order |   |
| Buyer Order Contact Telephone Number Extension     | Identifies the telephone number extension of the Buyer Order Contact  | String    | 6          | Optional      | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided.  |
| Buyer Order Contact Email Address                  | Identifies the electronic mail address of the Buyer Order Contact when a Buyer profile does not already exist.  | String    | 60         | Conditional   | Conditional           | Conditional  | This value MUST be provided when the Order Contact doesn't have a profile in the Seller's system.   |
| <b>Buyer Implementation Contact</b>                |   |           |            |               |                       |              |   |
| Buyer Implementation Contact Name                  | Identifies the name of the person or office that will be contacted during the service turn up and implementation. This is typically the person who accepts the service. | String    | 50         | Required      | Conditional           | Optional     | When Amending an Order with an Activity of "INSTALL", this value is REQUIRED.   |
| Buyer Implementation Contact Telephone Number      | Identifies the telephone number (excluding extension) of the Buyer Implementation Contact   | String    | 15         | Required      | Conditional           | Optional     | When Amending an Order with an Activity of "INSTALL", this value is REQUIRED.   |
| Implementation Contact Telephone Number Extension  | Identifies the telephone number extension of the Buyer Implementation Contact   | String    | 6          | Optional      | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided.  |
| Buyer Implementation Contact Email Address         | Identifies the electronic mail address of the Buyer Implementation Contact.   | String    | 60         | Required      | Conditional           | Optional     | When Amending an Order with an Activity of "INSTALL", this value is REQUIRED.   |
| <b>Buyer Technical Contact</b>                     |   |           |            |               |                       |              |   |
| Buyer Technical Contact Name                       | Identifies the name of the person or office that will be contacted during the service design for additional questions or concerns.                                      | String    | 50         | Required      | Optional              | Optional     | This value MUST be provided by the Buyer when the Order activity is "INSTALL". This information MAY be provided on Change activity. This information is prohibited on Disconnect and Cancel activity. |
| Buyer Technical Contact Telephone Number           | Identifies the telephone number (excluding extension) of the Buyer Technical Contact Name   | String    | 15         | Required      | Optional              | Optional     | This value MUST be provided by the Buyer when the Order activity is "INSTALL". This information MAY be provided on Change activity. This information is prohibited on Disconnect and Cancel activity. |
| Buyer Technical Contact Telephone Number Extension | Identifies the telephone number extension of the Buyer Technical Contact  | String    | 6          | Optional      | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided.  |
| Buyer Technical Contact Email Address              | Identifies the electronic mail address of the Buyer Technical Contact.  | String    | 60         | Required      | Conditional           | Optional     | This value MUST be provided by the Buyer when the Order activity is "INSTALL". This information MAY be provided on Change activity. This information is prohibited on Disconnect and Cancel activity. |
| Promotion ID                                       | A set of characters identifying a promotion. Company specific.  | String    | 18         | Optional      | Optional              | Optional     |   |
| Note   | Free form text to clarify or explain the order  | String    | 300        | Optional      | Optional              | Optional     |   |
| Serviceability Response Identifier                 | Value that associates this order with a previously assigned serviceability response   | String    | 20         | Optional      | Optional              | Optional     |   |



| Order Attribute   | Description  | Data Type   | Max Length | Access-E-Line |                       |              | Requirements  |
|---|--|-------------|------------|---------------|-----------------------|--------------|---|
|   |  |             |            | New Order     | Amend In-Flight Order | Change Order |   |
| Ordering line items for Access E-Line Product:  |  |             |            |               |                       |              |   |
| Order Item Action   | Action to be applied to this portion of the Order  | Enumeration |            | Required      | Required              | Required     | The valid values for this field are: <ul style="list-style-type: none"> <li>• INSTALL</li> <li>• CHANGE</li> <li>• DISCONNECT</li> <li>• NO_CHANGE</li> <li>• CANCEL</li> </ul> |
| Buyer Order Item Reference  | A reference to an item on the Order  | String      | 4          | Required      | Required              | Required     | This value is provided by the Buyer.  |
| Seller OVC Identifier   | The circuit identifier that the Seller uses to refer to this OVC.  | String      | 45         | Optional      | Optional              | Required     | This value is REQUIRED when requesting a Change to an existing service.   |
| Buyer OVC Identifier  | The circuit identifier that the Partner/Access Provider (Buyer) uses to refer to this OVC.   | String      | 45         | Optional      | Optional              | Optional     |   |
| Quote ID  | Unique identifier for the Quote that is generated by the Seller when the Quote is initially accepted via an API.   | String      | 45         | Optional      | Optional              | Optional     |   |
| Product Offering  | An identifier of the Partner/Access Provider (Seller) Product Offering (product catalog item) that the Buyer is ordering at the Access E-Line level. For example, a SPEC code or Catalog ID.   | String      | 25         | Optional      | Optional              | Optional     | This value may be further broken into both an ID and an optional URL reference.   |
| Buyer Billing information   |  |             |            |               |                       |              |   |
| Include Buyer Billing Information when it applies uniquely per Order Item. See Section 7.3 for full list of attributes and conditionality. When the information is provided at Order Item, it is PROHIBITED from being provided at Order level. |  |             |            |               |                       |              |   |
| /Buyer Billing information  |  |             |            |               |                       |              |   |
| SVLAN Identifier  | The S-VLAN ID to be used for this service.   | Integer     | 4          | Optional      | Optional              | Optional     | This attribute represents either a single SVLAN ID or the low-end bound in a range.   |
| SVLAN Identifier Last   | The last SVLAN ID in a range.  | Integer     | 4          | Optional      | Optional              | Optional     | This attribute is present as a high-end bound of a range of SVLAN IDs.  |
| OVC Maximum Frame Size (MFS)  | Per MEF 26.2, the maximum frame size provides the upper bounds on the length of an ingress frame. An integer greater or equal to 1526.   | Integer     |            | Optional      | Optional              | Optional     |   |
| Color Forwarding Enable Indicator   | Color Forwarding is an OVC attribute defining the relationship between the color on an egress ENNI frame and the color of the corresponding ingress ENNI Frame or Service Frame. For ordering, this attribute identifies if the Buyer requests Color Forwarding. | boolean     |            | Optional      | Optional              | Optional     | Valid Values = True or False  |

| Order Attribute                | Description   | Data Type   | Max Length | Access-E-Line |                       |              | Requirements  |
|--------------------------------|---|-------------|------------|---------------|-----------------------|--------------|---|
|                                |   |             |            | New Order     | Amend In-Flight Order | Change Order |   |
| Class of Service Name (COS)    | The name of the designation given to one or more sets of performance objectives and associated parameters by the Seller. (e.g., "Gold")   | String      | 20         | Optional      | Optional              | Optional     | For this version of the document, only one COS can be provided on the Order.  |
| OVC CEVLAN ID Preservation     |   | Enumeration |            | Optional      | Optional              | Optional     | Valid Values: <ul style="list-style-type: none"> <li>• PRESERVE</li> <li>• STRIP</li> <li>• RETAIN</li> </ul>                                     |
| ENNI Reference:                |   |             |            |               |                       |              | Either an Ordered ENNI Reference or an Existing ENNI Reference MUST be provided to indicate which ENNI the Access E-Line should be associated to. |
| Existing ENNI Reference        |   |             |            |               |                       |              |   |
| Seller ENNI Identifier         | The circuit identifier that the Seller uses to refer to this ENNI.  | String      | 45         | Conditional   | Conditional           | Required     | Required when the ENNI Identifier has been assigned by the Seller.  |
| Buyer ENNI Identifier          | The circuit identifier that the Buyer uses to refer to this ENNI.   | String      | 45         | Optional      | Optional              | Optional     |   |
| Ordered ENNI Reference:        |   |             |            |               |                       |              |   |
| Buyer Order Reference          | In the case where the Seller has not yet assigned the Seller ENNI Identifier, this field identifies the in-flight Order associated with the ENNI. Either the Order ID or the Buyer Purchase Order Number can be provided. | String      | 45         | Conditional   | Conditional           | Conditional  | Required when the ENNI Identifier has not been assigned by the Seller.  |
| ENNI Ingress Bandwidth Profile |   |             |            |               |                       |              |   |
| Committed Information Rate     | As defined in MEF 26.2, this value is expressed in bits per second. When Ordering, the value is expressed as a numeric value followed by Mbps or Gbps   | Integer     | 4          | Optional      | Optional              | Optional     | Integer value must be followed by either Mbps or Gbps.  |
| Committed Burst Size           | As defined in MEF 26.2, this value is expressed as bytes.   | Integer     |            | Optional      | Optional              | Optional     | The value must be greater than 0 if CIR is greater than 0.  |
| Excess Information Rate        | As defined in MEF 26.2, this value is expressed in bits per second. When Ordering, the value is expressed as a numeric value followed by Mbps or Gbps   | Integer     | 4          | Optional      | Optional              | Optional     | Integer value must be followed by either Mbps or Gbps.  |
| Excess Burst Size              | As defined in MEF 26.2, this value is expressed as bytes.   | Integer     |            | Optional      | Optional              | Optional     | The value MUST be greater than 0 if EIR is greater than 0.  |
| Color Mode                     | This enumeration indicates whether the Color Identifier of the Service Frame is considered by the Bandwidth Profile Algorithm   | Enumeration |            | Optional      | Optional              | Optional     | Valid Values: <ul style="list-style-type: none"> <li>• COLOR_AWARE</li> <li>• COLOR_BLIND</li> </ul>  |

| Order Attribute                    | Description   | Data Type | Max Length | Access-E-Line |                       |              | Requirements   |
|------------------------------------|---|-----------|------------|---------------|-----------------------|--------------|--|
|                                    |   |           |            | New Order     | Amend In-Flight Order | Change Order |  |
| Coupling Flag                      | This value determines whether or not overflow tokens not used for ENNI Frames declared Green can be used as Yellow tokens.                            | boolean   |            | Optional      | Optional              | Optional     | Valid Values: 0 or 1   |
| <b>ENNI Site Contact</b>           |   |           |            |               |                       |              |  |
| Site Contact Name                  | Identifies the name of the person at the ENNI location that is the local contact. This contact will primarily be used for gaining access to the site. | String    | 50         | Optional      | Optional              | Optional     |  |
| Site Contact Telephone Number      | Identifies the telephone number (excluding extension) of the Site Contact.  | String    | 15         | Optional      | Optional              | Optional     |  |
| Site Telephone Number Extension    | Identifies the telephone number extension of the Site Contact   | String    | 6          | Optional      | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided.   |
| Site Contact Email Address         | Identifies the electronic mail address of the Site Contact.   | String    | 60         | Optional      | Optional              | Optional     |  |
| <b>ENNI Alternate Site Contact</b> |   |           |            |               |                       |              |  |
| Site Contact Name                  | Identifies the name of an alternate contact at the ENNI location. This contact will primarily be used for gaining access to the site.                 | String    | 50         | Optional      | Optional              | Optional     |  |
| Site Contact Telephone Number      | Identifies the telephone number (excluding extension) of the alternate Site Contact.  | String    | 15         | Optional      | Optional              | Optional     |  |
| Site Telephone Number Extension    | Identifies the telephone number extension of the alternate Site Contact   | String    | 6          | Optional      | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided.   |
| Site Contact Email Address         | Identifies the electronic mail address of the alternate Site Contact.   | String    | 60         | Optional      | Optional              | Optional     |  |
| <b>UNI Reference:</b>              |   |           |            |               |                       |              | Either an Ordered UNI Reference or an Existing UNI Reference MUST be provided to indicate which UNI the Access E-Line should be associated to. |
| <b>Existing UNI Reference:</b>     |   |           |            |               |                       |              |  |
| Seller UNI Identifier              | The circuit identifier that the Seller uses to refer to this UNI.   | String    | 45         | Conditional   | Conditional           | Required     | Required when the UNI Identifier has been assigned by the Seller.  |
| Buyer UNI Identifier               | The circuit identifier that the Buyer uses to refer to this UNI.  | String    | 45         | Optional      | Optional              | Optional     |  |
| <b>Ordered UNI Reference:</b>      |   |           |            |               |                       |              |  |

| Order Attribute                      | Description   | Data Type   | Max Length | Access-E-Line |                       |              | Requirements   |
|--------------------------------------|---|-------------|------------|---------------|-----------------------|--------------|--|
|                                      |   |             |            | New Order     | Amend In-Flight Order | Change Order |  |
| Buyer Order Reference                | In the case where the UNI is being ordered on a separate Order and the Seller has not yet assigned the Seller UNI Identifier, this field identifies the in-flight Order associated with this UNI. Either the Order ID or the Buyer Purchase Order Number can be provided. | String      | 45         | Conditional   | Conditional           | Conditional  | For the conditional cases, this value MUST be provided when the Seller UNI Identifier is not provided. |
| Order Item Reference                 | The association of the UNI to an item on this Order.  | String      | 4          | Conditional   | Conditional           | Conditional  | The value MUST be provided when the UNI is being ordered as part of the Access E-Line order.           |
| <b>UNI Ingress Bandwidth Profile</b> |   |             |            |               |                       |              |  |
| Committed Information Rate           | As defined in MEF 10.3, this value is expressed in bits per second. When Ordering, the value is expressed as a numeric value followed by Mbps or Gbps   | Integer     | 4          | Optional      | Optional              | Optional     | Integer value must be followed by either Mbps or Gbps.   |
| Committed Burst Size                 | As defined in MEF 10.3, this value is expressed as bytes.   | Integer     |            | Optional      | Optional              | Optional     | The value must be greater than 0 when the CIR is greater than 0.                                       |
| Excess Information Rate              | As defined in MEF 10.3, this value is expressed in bits per second. When Ordering, the value is expressed as a numeric value followed by Mbps or Gbps   | Integer     | 4          | Optional      | Optional              | Optional     | Integer value must be followed by either Mbps or Gbps.   |
| Excess Burst Size                    | As defined in MEF 10.3, this value is expressed as bytes.   | Integer     |            | Optional      | Optional              | Optional     | The value MUST be greater than 0 when the EIR is greater than 0.                                       |
| Color Mode                           | This enumeration indicates whether the Color Identifier of the Service Frame is considered by the Bandwidth Profile Algorithm   | Enumeration |            | Optional      | Optional              | Optional     | Valid Values: <ul style="list-style-type: none"> <li>• COLOR_AWARE</li> <li>• COLOR_BLIND</li> </ul>   |
| Coupling Flag                        | This value determines whether or not overflow tokens not used for ENNI Frames declared Green can be used as Yellow tokens.  | boolean     |            | Optional      | Optional              | Optional     | Valid Values: 0 or 1   |

Table 4 – Access E-Line Ordering Attributes (Use Cases 1, 2, 5)

## 7.2 UNI Ordering Attributes

The below table defines the attributes associated with the Create New Order (Use Case 1), Create Change Order (Use Case 2) and Amend In-Flight Order (Use Case 5) for ordering of a UNI. A UNI may be ordered either as a standalone entity or in combination with an Access E-Line order.

| Order Attribute                     | Description   | Data Type   | Max Length | UNI        |                       |              | Requirements   |
|-------------------------------------|---|-------------|------------|------------|-----------------------|--------------|--|
|                                     |   |             |            | New Order  | Amend In-Flight Order | Change Order |  |
| Order Header Information            |   |             |            |            |                       |              |  |
| Order ID                            | Unique identifier for the order that is generated by the Seller when the order is initially accepted via an API.  | String      | 45         | Prohibited | Required              | Prohibited   | This value MUST be provided by the Seller on all response messages.<br>This value MUST remain the same for the life of the Order.                            |
| Buyer (Service Provider) ID         | A Party Role played by an Individual or an Organization that buys products and services from a Seller. Specifically, the ID of the Service Provider (Buyer) organization placing the order. | String      | 25         | Required   | Required              | Required     | This value MUST match the value used on the New Order request when initiating any other Ordering Use Case.   |
| Seller (Partner/Access Provider) ID | A Party Role played by an organization that provides products and services to a Buyer. Specifically, the ID of the Partner/Access Provider (Seller) organization receiving the order.       | String      | 25         | Required   | Required              | Required     | This value MUST match the value used on the New Order request when initiating any other Ordering Use Case.   |
| Buyer Purchase Order Number         | A number that uniquely identifies an order within the Buyer's enterprise.   | String      | 16         | Required   | Required              | Required     | The original value MUST be maintained for the life of the Order.<br>This value may be reused after two years from the completion date of the original order. |
| Buyer Order Version                 | The version number that the Buyer uses to refer to this particular version of the order.  | String      | 2          | Required   | Required              | Required     | This value MUST be assigned by the Buyer and retained by the Seller.   |
| Order Date                          | Date when the order was created   | dateTime    |            | Required   | Required              | Required     | This value MUST be assigned by the Buyer when submitting an Order.   |
| Order Activity                      | The type of order, as defined by the business (e.g., install, change, disconnect).  | Enumeration |            | Required   | Required              | Required     | The valid values for this field are:<br>• INSTALL<br>• CHANGE<br>• DISCONNECT  |
| Desired Responses                   | The type of order responses that the Buyer wishes to receive from the Seller  | Enumeration |            | Required   | Required              | Required     | The valid values for this field are:<br>• CONFIRMATION_AND_ENGINEERING DESIGN<br>• CONFIRMATION_ONLY<br>• NONE   |
| Project ID                          | An identifier that is used to group Orders that represent a unit of functionality that is important to a Buyer. A Project can be used to relate multiple Orders together.                   | String      | 16         | Optional   | Optional              | Optional     | This value MAY be assigned by the Buyer/Seller to identify a project the order is associated with.   |
| Related Buyer Purchase Order Number | Identifies the Buyer Purchase Order Number that is related to this order.   | String      | 16         | Optional   | Optional              | Optional     |  |

| Order Attribute   | Description  | Data Type | Max Length | UNI         |                       |              | Requirements   |
|---|--|-----------|------------|-------------|-----------------------|--------------|--|
|   |  |           |            | New Order   | Amend In-Flight Order | Change Order |  |
| Requested Completion Date   | Identifies the Buyer's desired due date (requested delivery date) formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00)                               | dateTime  |            | Required    | Required              | Required     | This value MUST be assigned by the Buyer to identify the requested completion date.  |
| Requested Start Date  | If specified, identifies the Buyer's desired date for order processing to start. Formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00)                | dateTime  |            | Optional    | Optional              | Optional     |  |
| Expedite/Priority Indicator   | Indicates that expedited treatment is requested and any charges generated in provisioning this request (e.g., additional engineering charges or labor charges if applicable) will be accepted. | boolean   |            | Required    | Required              | Required     | Valid Values = True or False<br>Default Value = False  |
| Expedite/Priority Value   | An integer that specifies that expedited treatment is to be provided in a specific priority.   | Integer   |            | Conditional | Conditional           | Conditional  | This field will be ignored if the Expedite/Priority Indicator is False.<br><br>The valid values and the business/operational rules for this field will be defined by the Seller as part of the contracting or on-boarding process. |
| Telecommunication Service Priority/ Restoration Priority  | Within the United States, indicates the provisioning and restoration priority as defined under the TSP Service Vendor Handbook.  | String    | 12         | Optional    | Optional              | Optional     | The valid values are defined in ATIS OBF document: ATIS-0404001  |
| <b>Buyer Billing information</b>  |  |           |            |             |                       |              |  |
| Include Buyer Billing Information when it applies to all Order Items within the Order. See Section 7.3 for full list of attributes and conditionality. When the information is provided at Order level, it is PROHIBITED from being provided at Order Item level. |  |           |            |             |                       |              |  |
| <b>/Buyer Billing information</b>   |  |           |            |             |                       |              |  |
| <b>Buyer Order Contact</b>  |  |           |            |             |                       |              |  |
| Buyer Order Contact Name  | Identifies the name of the person or office that is buying the product.  | String    | 50         | Required    | Required              | Required     | This value is REQUIRED when the Order is not being Cancelled.  |
| Buyer Order Contact Telephone Number  | Identifies the telephone number (excluding extension) of the Buyer Order Contact.  | String    | 15         | Required    | Required              | Required     | This value is REQUIRED when the Order is not being Cancelled.  |
| Buyer Order Contact Telephone Number Extension  | Identifies the telephone number extension of the Buyer Order Contact   | String    | 6          | Optional    | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided.   |
| Buyer Order Contact Email Address   | Identifies the electronic mail address of the Buyer Order Contact when a Buyer profile does not already exist.   | String    | 60         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Order Contact doesn't have a profile in the Seller's system.   |

| Order Attribute                                    | Description   | Data Type | Max Length | UNI       |                       |              | Requirements  |
|--|---|-----------|------------|-----------|-----------------------|--------------|---|
|  |   |           |            | New Order | Amend In-Flight Order | Change Order |   |
| <b>Buyer Implementation Contact</b>                |   |           |            |           |                       |              |   |
| Buyer Implementation Contact Name                  | Identifies the name of the person or office that will be contacted during the service turn up and implementation. This is typically the person who accepts the service. | String    | 50         | Required  | Conditional           | Optional     | When Amending an Order with an Activity of "INSTALL", this value is REQUIRED.   |
| Buyer Implementation Contact Telephone Number      | Identifies the telephone number (excluding extension) of the Buyer Implementation Contact   | String    | 15         | Required  | Conditional           | Optional     | When Amending an Order with an Activity of "INSTALL", this value is REQUIRED.   |
| Implementation Contact Telephone Number Extension  | Identifies the telephone number extension of the Buyer Implementation Contact   | String    | 6          | Optional  | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided.  |
| Buyer Implementation Contact Email Address         | Identifies the electronic mail address of the Buyer Implementation Contact.   | String    | 60         | Required  | Conditional           | Optional     | When Amending an Order with an Activity of "INSTALL", this value is REQUIRED.   |
| <b>Buyer Technical Contact</b>                     |   |           |            |           |                       |              |   |
| Buyer Technical Contact Name                       | Identifies the name of the person or office that will be contacted during the service design for additional questions or concerns.                                      | String    | 50         | Required  | Optional              | Optional     | This value MUST be provided by the Buyer when the Order activity is "INSTALL". This information MAY be provided on Change activity. This information is prohibited on Disconnect and Cancel activity. |
| Buyer Technical Contact Telephone Number           | Identifies the telephone number (excluding extension) of the Buyer Technical Contact Name   | String    | 15         | Required  | Optional              | Optional     | This value MUST be provided by the Buyer when the Order activity is "INSTALL". This information MAY be provided on Change activity. This information is prohibited on Disconnect and Cancel activity. |
| Buyer Technical Contact Telephone Number Extension | Identifies the telephone number extension of the Buyer Technical Contact  | String    | 6          | Optional  | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided.  |
| Buyer Technical Contact Email Address              | Identifies the electronic mail address of the Buyer Technical Contact.  | String    | 60         | Required  | Conditional           | Optional     | This value MUST be provided by the Buyer when the Order activity is "INSTALL". This information MAY be provided on Change activity. This information is prohibited on Disconnect and Cancel activity. |
| Promotion ID                                       | A set of characters identifying a promotion. Company specific.  | String    | 18         | Optional  | Optional              | Optional     |   |
| Note   | Free form text to clarify or explain the order  | String    | 300        | Optional  | Optional              | Optional     |   |
| Serviceability Response Identifier                 | Value that associates this order with a previously assigned serviceability response.  | String    | 20         | Optional  | Optional              | Optional     |   |

| Order Attribute   | Description   | Data Type   | Max Length | UNI       |                       |              | Requirements   |
|---|---|-------------|------------|-----------|-----------------------|--------------|--|
|   |   |             |            | New Order | Amend In-Flight Order | Change Order |  |
| Ordering line items for UNI Product:  |   |             |            |           |                       |              |  |
| Product Offering  | An identifier of the Partner/Access Provider (Seller) Product Offering (product catalog item) that the Buyer is ordering. For example, a SPEC code or Catalog ID. | String      | 25         | Optional  | Optional              | Optional     | This value may be further broken into both an ID and an optional URL reference.  |
| Quote ID  | Unique identifier for the Quote that is generated by the Seller when the Quote is initially accepted via an API.  | String      | 45         | Optional  | Optional              | Optional     |  |
| Existing UNI Reference  |   |             |            |           |                       |              |  |
| Seller UNI Identifier   | The circuit identifier that the Seller uses to refer to this UNI.   | String      | 45         | Optional  | Conditional           | Required     | Required when the UNI Identifier has been assigned by the Seller; otherwise Optional.  |
| Buyer UNI Identifier  | The circuit identifier that the Buyer uses to refer to this UNI.  | String      | 45         | Optional  | Optional              | Optional     |  |
| Buyer Billing information   |   |             |            |           |                       |              |  |
| Include Buyer Billing Information when it applies uniquely per Order Item. See Section 7.3 for full list of attributes and conditionality. When the information is provided at Order Item, it is PROHIBITED from being provided at Order level. |   |             |            |           |                       |              |  |
| /Buyer Billing information  |   |             |            |           |                       |              |  |
| Physical Layer  | The layer (layer 1) that provides transparent transmission of a bit stream over a circuit built from some physical communications medium.                         | Enumeration |            | Required  | Optional              | Optional     | Enumeration list will be based on MEF specifications and IEEE Std 802.3<br>Sample values are:<br>"10BASE-T", "100BASE-TX", "100BASE-FX", "1000BASE-T", "1000BASE-SX", "1000BASE-LX", "10GBASE-SR", "10GBASE-SW", "10GBASE-LR", "10GBASE-LX4", "10GBASE-LW", "10GBASE-ER", "10GBASE-EW" |
| Synchronous Mode Enabled  | Identifies if the synchronous transmissions are to proceed at a constant rate.  | boolean     |            | Optional  | Optional              | Optional     | Valid Values = True or False   |
| Number of Links   | The number of links supporting the UNI.   | Integer     | 2          | Optional  | Optional              | Optional     |  |
| Token Share Enabled?  | Identifies whether a given UNI is capable of sharing tokens across Bandwidth Profile Flows in an Envelope. MEF valid values are Enabled or Disabled.              | boolean     |            | Optional  | Optional              | Optional     | Valid Values = True or False<br><br>This is an optional field and must be set to "True" when Enabling is requested. Otherwise, the default setting is Disabled.  |
| UNI Resiliency  | Enumeration: "NONE", "2_LINK_ACTIVE_STANDBY", "ALL_ACTIVE", "OTHER"   | Enumeration |            | Optional  | Optional              | Optional     | Valid Values: : "NONE", "2_LINK_ACTIVE_STANDBY", "ALL_ACTIVE", "OTHER"   |
| UNI Maximum Service Frame Size (MFS)  | Indicates the maximum service frame size that can be reliably processed at the UNI level.<br><br>An integer greater or equal to 1522, per MEF 26.2.               | Integer     | 5          | Optional  | Optional              | Optional     |  |



| Order Attribute                            | Description  | Data Type   | Max Length | UNI       |                       |              | Requirements   |
|--|--|-------------|------------|-----------|-----------------------|--------------|--|
|  |  |             |            | New Order | Amend In-Flight Order | Change Order |  |
| All-to-One Bundling                        | All-to-One Bundling can be either Enabled or Disabled. A value of True would equate to "Enabled".  | boolean     |            | Optional  | Optional              | Optional     | Valid Values = True or False   |
| Link OAM Enabled                           | Link OAM enables the operator to monitor and troubleshoot a single Ethernet link. For ordering, this is an optional parameter that may be requested.   | boolean     |            | Optional  | Optional              | Optional     | Valid Values = True or False   |
| UNI Maintenance Entity Group (MEG) Enabled | Request for monitoring of a UNI. For ordering, this is an optional parameter that may be requested.  | boolean     |            | Optional  | Optional              | Optional     | Valid Values = True or False   |
| E-LMI Enabled                              | Indicates the desire for management of the customer interface. For ordering, this is an optional parameter that may be requested.  | boolean     |            | Optional  | Optional              | Optional     | Valid Values = True or False   |
| UNI L2CP Address Set                       | Identifies the discard/pass action for all non-peered layer two control protocols. Enumeration: "CTA", "CTB" or "CTB-2"  | Enumeration |            | Optional  | Optional              | Optional     | Valid Values = "CTA", "CTB" or "CTB-2"   |
| UNI L2CP Peering                           | Can be either an empty list, or a list of entries identifying protocols to be peered where each entry consists of {Destination Address, Protocol Identifier} or {Destination Address, Protocol Identifier, Link Identifier}. | Array       |            | Optional  | Optional              | Optional     | This will be separated into component parts.   |
| <b>UNI Site Information</b>                |  |             |            |           |                       |              |  |
| Site Company Name                          | The name of the company that is located at the Service location. This may be different from the name of the Buyer that ordered services at that site.  | String      | 25         | Required  | Conditional           | Optional     | This value MUST be provided when requested a New UNI.  |
| Site Customer Name                         | The customer name at the site where the service is being delivered.  | String      | 25         | Optional  | Optional              | Optional     |  |
| Site Name                                  | A name by which the site is known.   | String      | 60         | Optional  | Optional              | Optional     |  |
| Site Description                           | A description for the site.  | String      | 300        | Optional  | Optional              | Optional     |  |
| Additional Site Information                | Additional information about the Site or special delivery information. Free-form text input.   | String      | 100        | Optional  | Optional              | Optional     |  |
| Site Address Type                          | Identifies the type of address to be provided for the service location. Sections below are required based on Site Address Type selected.   | Enumeration |            | Required  | Conditional           | Conditional  | Valid Values: <ul style="list-style-type: none"> <li>• FieldedAddress</li> <li>• FormattedAddress</li> <li>• AddressReference</li> <li>• Geographic Point</li> </ul> |
| <b>FieldedAddress</b>                      |  |             |            |           |                       |              |  |
| Street Number                              | Number identifying a property on a public street. It may be combined with Street Number Last for ranged addresses  | String      | 10         | Optional  | Optional              | Optional     |  |

| Order Attribute           | Description  | Data Type | Max Length | UNI         |                       |              | Requirements  |
|---------------------------|--|-----------|------------|-------------|-----------------------|--------------|---|
|                           |  |           |            | New Order   | Amend In-Flight Order | Change Order |   |
| Street Number Suffix      | The suffix of the first street number (in a street number range) or the suffix for the street number if there is no range. | String    | 10         | Optional    | Optional              | Optional     |   |
| Street Number Last        | Last number in a range of street numbers allocated to an address.  | String    | 10         | Optional    | Optional              | Optional     |   |
| Street Number Suffix Last | The suffix of the last street number in a range of street numbers.   | String    | 10         | Optional    | Optional              | Optional     |   |
| Street Name               | The name of the street or other street type.   | String    | 60         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = FieldedAddress and the Order is not being cancelled or disconnected. |
| Street Type               | The type of street (e.g., Street, St., Road, Rd., Alley).  | String    | 25         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = FieldedAddress and the Order is not being cancelled or disconnected. |
| Street Suffix             | A modifier denoting a relative direction.  | String    | 2          | Optional    | Optional              | Optional     |   |
| Sub Unit Type             | The type of subunit (e.g., Flat, Suite, Tower, Unit).  | String    | 25         | Optional    | Optional              | Optional     |   |
| Sub Unit Number           | The discriminator used for the subunit, often just a simple number but may also be a range.                                | String    | 10         | Optional    | Optional              | Optional     |   |
| Level Type                | Describes level types within a building (e.g., Floor)  | String    | 25         | Optional    | Optional              | Optional     |   |
| Level Number              | Used where a Level Type has been populated. This value is may be a simple number or description, such as "Basement".       | String    | 25         | Optional    | Optional              | Optional     |   |
| Building Name             | Allows for buildings with well-known names to be used in an address.   | String    | 60         | Optional    | Optional              | Optional     |   |
| Private Street Number     | The number associated to the private street name.  | String    | 10         | Optional    | Optional              | Optional     |   |
| Private Street Name       | Private streets internal to a property (e.g., a university) with an internal name not recorded by the land title office.   | String    | 60         | Optional    | Optional              | Optional     |   |
| Locality                  | A bounded locality within a city, town or shire principally of urban character.  | String    | 50         | Optional    | Optional              | Optional     |   |
| City                      | The city that the address is in.   | String    | 50         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = FieldedAddress and the Order is not being cancelled or disconnected. |
| State or Province         | The state or province that the address is in.  | String    | 50         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = FieldedAddress and the Order is not being cancelled or disconnected. |

| Order Attribute         | Description  | Data Type | Max Length | UNI         |                       |              | Requirements  |
|-------------------------|--|-----------|------------|-------------|-----------------------|--------------|---|
|                         |  |           |            | New Order   | Amend In-Flight Order | Change Order |   |
| Postal Code             | A descriptor for a postal delivery area, used to speed and simplify the delivery of mail.                          | String    | 6          | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = FieldedAddress and the Order is not being cancelled or disconnected.                                     |
| Postal Code Extension   | The four-digit extension on an American postal code, what comes after the hyphen when specified.                   | String    | 4          | Optional    | Optional              | Optional     | This value MAY only be populated when the associated Postal Code is provided.   |
| Country                 | The country that the address is in.  | String    | 50         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = FieldedAddress and the Order is not being cancelled or disconnected.                                     |
| <b>FormattedAddress</b> |  |           |            |             |                       |              |   |
| Formatted Address Line1 | A formatted address line that contains a non-fielded street address.   | String    | 60         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = FormattedAddress and the Order is not being cancelled or disconnected.                                   |
| Formatted Address Line2 | A formatted address line that contains a non-fielded street address, sub-address (e.g. Suite number), etc.         | String    | 60         | Optional    | Optional              | Optional     |   |
| Locality                | A bounded locality within a city, town or shire principally of urban character.                                    | String    | 50         | Optional    | Optional              | Optional     |   |
| City                    | The city that the address is in.   | String    | 50         | Optional    | Optional              | Optional     |   |
| State or Province       | The state or province that the address is in.  | String    | 50         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = FormattedAddress and the Order is not being cancelled or disconnected.                                   |
| Postal Code             | A descriptor for a postal delivery area, used to speed and simplify the delivery of mail.                          | String    | 6          | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = FormattedAddress and the Order is not being cancelled or disconnected.                                   |
| Postal Code Extension   | The four-digit extension on an American postal code, what comes after the hyphen when specified.                   | String    | 4          | Optional    | Optional              | Optional     | This value MAY only be populated when the associated Postal Code is provided.   |
| Country                 | The country that the address is in.  | String    | 50         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = FormattedAddress and the Order is not being cancelled or disconnected.                                   |
| <b>AddressReference</b> |  |           |            |             |                       |              |   |
| Address Reference ID    | A reference to an address by id; this would include such things CLLI Codes or Seller-assigned address identifiers. | String    | 60         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = AddressReference   |
| <b>Geographic Point</b> |  |           |            |             |                       |              |   |
| Longitude/Latitude      | A geometric point on earth, which can include a latitude, longitude, and elevation in "decimal degrees" format.    | String    | 10         | Conditional | Conditional           | Conditional  | This value is REQUIRED when the Address Type = GeographicPoint<br>For implementation, these values should be implemented as 2 fields of length defined. |
| <b>UNI Site Contact</b> |  |           |            |             |                       |              |   |

| Order Attribute                         | Description  | Data Type | Max Length | UNI       |                       |              | Requirements   |
|---|--|-----------|------------|-----------|-----------------------|--------------|--|
|   |  |           |            | New Order | Amend In-Flight Order | Change Order |  |
| Site Contact Name                       | Identifies the name of the person at the specific site location that is the local contact. This contact will primarily be used for gaining access to the site. | String    | 50         | Optional  | Optional              | Optional     |  |
| Site Contact Telephone Number           | Identifies the telephone number (excluding extension) of the Site Contact.   | String    | 15         | Optional  | Optional              | Optional     |  |
| Site Contact Telephone Number Extension | Identifies the telephone number extension of the Site Contact  | String    | 6          | Optional  | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided. |
| Site Contact Email Address              | Identifies the electronic mail address of the Site Contact.  | String    | 60         | Optional  | Optional              | Optional     |  |
| <b>Alternate UNI Site Contact</b>       |  |           |            |           |                       |              |  |
| Site Contact Name                       | Identifies the name of an alternate contact at the specific site location. This contact will primarily be used for gaining access to the site.                 | String    | 50         | Optional  | Optional              | Optional     |  |
| Site Contact Telephone Number           | Identifies the telephone number (excluding extension) of the alternate Site Contact.   | String    | 15         | Optional  | Optional              | Optional     |  |
| Site Contact Telephone Number Extension | Identifies the telephone number extension of the alternate Site Contact  | String    | 6          | Optional  | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided. |
| Site Contact Email Address              | Identifies the electronic mail address of the alternate Site Contact.  | String    | 60         | Optional  | Optional              | Optional     |  |

Table 5 – UNI Ordering Attributes (Use Cases 1, 2, 5)

### 7.3 Buyer Billing Information

The below table defines the attributes associated with the Buyer Billing information. This information may be provided at either Order or Order Item level. If the information is provided at Order level, it will apply to every Order Item on this Order. If the information is not provided at Order level, then each Order Item must provide the following information. Billing information must not be provided at both Order and Order Item level within the same Order.

| Order Attribute                            | Description  | Data Type   | Max Length | All Products |                       |              | Requirements   |
|--|--|-------------|------------|--------------|-----------------------|--------------|--|
|  |  |             |            | New Order    | Amend In-Flight Order | Change Order |  |
| <b>Buyer Billing Information</b>           |  |             |            |              |                       |              |  |
| Billing Account                            | Identifies the billing account to which the recurring and non-recurring charges for this request will be billed.                     | String      | 13         | Conditional  | Conditional           | Required     | - If a billing account already exists, this value SHOULD be provided.<br>- The value of "EXISTING" MAY be used when the Billing Account was previously established (as opposed to the actual Billing Account number).<br>- The value of "NEW" MUST be used when the Buyer requests the Seller to create a new Billing Account. |
| Billing Contact Name                       | Identifies the name of the person or office to be contacted on billing matters.  | String      | 50         | Conditional  | Conditional           | Conditional  | This value MUST be provided when a Billing Account has not been established (Billing Account value = "NEW").   |
| Billing Contact Telephone Number           | Identifies the telephone number (excluding extension) of the billing contact   | String      | 15         | Conditional  | Conditional           | Conditional  | This value is MUST be provided when a Billing Account has not been established (Billing Account value = "NEW").  |
| Billing Contact Telephone Number Extension | Identifies the telephone number extension of the billing contact   | String      | 6          | Optional     | Optional              | Optional     | This value MAY only be populated when the associated Telephone Number is provided.   |
| Billing Contact Email Address              | Identifies the electronic mail address of the Billing Contact when a Buyer profile does not already exist.                           | String      | 60         | Conditional  | Conditional           | Conditional  | This value MUST be provided when a Billing Account has not been established (Billing Account value = "NEW").   |
| Billing Contact Street Address             | Identifies the address of the person or office to be contacted on billing matters.   | String      | 100        | Conditional  | Conditional           | Conditional  | This value MUST be provided when a Billing Account has not been established and the Order is not being Cancelled. (Billing Account value = "NEW")  |
| Pricing Method                             | The pricing authority to be used to price the products on this order. Choice of Tariff, Contract, Individual Case Basis (ICB), Other | Enumeration |            | Optional     | Optional              | Optional     | Enumeration Literals:<br>• CONTRACT<br>• TARIFF<br>• INDIVIDUAL_CASE_BASIS<br>• OTHER  |
| Pricing Reference                          | The value associated with the Pricing Method selected (e.g. a contract or tariff id).  | String      | 25         | Optional     | Optional              | Optional     | This value MAY be provided on New, Amend or Change Order to identify an associated contract or tariff. This value is prohibited on Disconnect or Cancel Order.   |
| Pricing Term                               | The length of the contract in months   | Integer     | 3          | Optional     | Optional              | Optional     | The length of the contract in months. Example: 12, 60, 120   |

Table 6 – Buyer Billing Attributes (Use Cases 1, 2, 5)

## 7.4 Cancel In-Flight Order Use Case

The below table defines the attributes for the Cancel In-Flight Order Use Case (Use Case 6). This process is used when the Buyer cancels an order that has been submitted to a Seller and the Seller acknowledged the Order. There is no further Order activity after this process step.

| Order Attribute                     | Description   | Data Type | Max Length | Cancel In-flight Order | Requirements  |
|-------------------------------------|---|-----------|------------|------------------------|---|
| <b>Order Header Information</b>     |   |           |            |                        |   |
| Order ID                            | Unique identifier for the order that is generated by the Seller when the order is initially accepted via an API.  | String    | 45         | Required               | This value MUST be provided by the Seller on all response messages. This value MUST remain the same for the life of the Order.                            |
| Buyer (Service Provider) ID         | A Party Role played by an Individual or an Organization that buys products and services from a Seller. Specifically, the ID of the Service Provider (Buyer) organization placing the order. | String    | 25         | Required               | This value MUST match the value used on the Order request when initiating any other Ordering Use Case.  |
| Seller (Partner/Access Provider) ID | A Party Role played by an organization that provides products and services to a Buyer. Specifically, the ID of the Partner/Access Provider (Seller) organization receiving the order.       | String    | 25         | Required               | This value MUST match the value used on the Order request when initiating any other Ordering Use Case.  |
| Buyer Purchase Order Number         | A number that uniquely identifies an order within the Buyer's enterprise.   | String    | 16         | Required               | The original value MUST be maintained for the life of the Order. This value may be reused after two years from the completion date of the original order. |
| Buyer Order Version                 | The version number that the Buyer uses to refer to this particular version of the order.  | String    | 2          | Optional               | This value MUST be assigned by the Buyer and retained by the Seller.  |
| Order Cancellation Date             | Identifies the date the Seller cancelled the Order. Formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00)  | dateTime  |            | Required               | The value MUST be assigned by the Seller when cancelling an Order   |
| Cancellation Reason                 | An optional free-form text field for the Seller to provide additional information regarding the reason for the cancellation.  | String    | 300        | Optional               |   |

Table 7 – Cancel Order Ordering Attributes - Use Case 6

## 7.5 Disconnect Use Case Attributes

The below table defines the attributes for the Create Disconnect Order Use Case (Use Case 3). As disconnect processing is extremely streamlined, the attributes required for this request are limited. This is the only Use Case that supports the inclusion of more than one MEF Service on the same Order. However, it is recommended that no more than 20 order items be included on the same Order due to the complexity of Order management within the Seller's environment.

| Order Attribute                     | Description   | Data Type | Max Length | Disconnect | Requirements   |
|-------------------------------------|---|-----------|------------|------------|--|
| <b>Order Header Information</b>     |   |           |            |            |  |
| Order ID                            | Unique identified for the order that is generated by the Seller when the order is initially accepted via an API.  | String    | 45         | Prohibited | This value MUST be provided by the Seller on all response messages. This value MUST remain the same for the life of the Order. This value MUST NOT be populated on the initial submission of a Disconnect Order. |
| Buyer (Service Provider) ID         | A Party Role played by an Individual or an Organization that buys products and services from a Seller. Specifically, the ID of the Service Provider (Buyer) organization placing the order. | String    | 25         | Required   | This value MUST match the value used on the New Order request when initiating any other Ordering Use Case.   |
| Seller (Partner/Access Provider) ID | A Party Role played by an organization that provides products and services to a Buyer. Specifically, the ID of the Partner/Access Provider (Seller) organization receiving the order.       | String    | 25         | Required   | This value MUST match the value used on the New Order request when initiating any other Ordering Use Case.   |
| Buyer Purchase Order Number         | A number that uniquely identifies an order within the Buyer's enterprise.   | String    | 16         | Required   | The original value MUST be maintained for the life of the Order. This value may be reused after two years from the completion date of the original order.  |
| Buyer Order Version                 | The version number that the Buyer uses to refer to this particular version of the order.  | String    | 2          | Required   | This value MUST be assigned by the Buyer and retained by the Seller.   |
| Order Date                          | Date when the order was created   | dateTime  |            | Required   | This value MUST be assigned by the Buyer when submitting an Order.   |

| Order Attribute                     | Description   | Data Type   | Max Length | Disconnect | Requirements  |
|-------------------------------------|---|-------------|------------|------------|---|
| Order Activity                      | The type of order, as defined by the business (e.g., install, change, disconnect).  | Enumeration |            | Required   | The valid values for this field are: <ul style="list-style-type: none"> <li>• INSTALL</li> <li>• CHANGE</li> <li>• DISCONNECT</li> </ul> For this Use Case, the only correct value would be "DISCONNECT".   |
| Desired Responses                   | The type of order responses that the Buyer wishes to receive from the Seller.   | Enumeration |            | Required   | The valid values for this field are: <ul style="list-style-type: none"> <li>• CONFIRMATION_AND_ENGINEERING DESIGN</li> <li>• CONFIRMATION_ONLY</li> <li>• NONE</li> </ul> For this Use Case, the value of "CONFIRMATION_AND_ENGINEERING DESIGN" SHOULD NOT be used. |
| Project ID                          | An identifier that is used to group Orders that represent a unit of functionality that is important to a Buyer. A Project can be used to relate multiple Orders together.       | String      | 16         | Optional   | This value MAY be assigned by the Buyer/Seller to identify a project the order is associated with.  |
| Related Buyer Purchase Order Number | Identifies the Buyer Purchase Order Number that is related to this order.   | String      | 16         | Optional   |   |
| Requested Completion Date           | Identifies the Buyer's desired due date (requested delivery date) formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00)                | dateTime    |            | Required   | This value MUST be assigned by the Buyer to identify the requested completion date.   |
| Requested Start Date                | If specified, identifies the Buyer's desired date for order processing to start. Formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00) | dateTime    |            | Optional   |   |
| Expedite/Priority Indicator         | Indicates that expedited treatment is requested and any charges generated in provisioning this request (e.g., additional engineering  | Boolean     |            | Prohibited | This value MUST NOT be populated on Disconnect Orders.  |



| Order Attribute                                | Description  | Data Type | Max Length | Disconnect  | Requirements   |
|--|--|-----------|------------|-------------|--|
|  | charges or labor charges if applicable) will be accepted.  |           |            |             |  |
| <b>Buyer Billing information</b>               |  |           |            |             |  |
| Billing Account                                | Identifies the billing account to which the recurring and non-recurring charges for this request will be billed. | String    | 13         | Prohibited  | This value MUST NOT be populated on Disconnect Orders.                                       |
| Billing Contact Name                           | Identifies the name of the person or office to be contacted on billing matters.                                  | String    | 50         | Prohibited  | This value MUST NOT be populated on Disconnect Orders.                                       |
| Billing Contact Telephone Number               | Identifies the telephone number (excluding extension) of the billing contact                                     | String    | 15         | Prohibited  | This value MUST NOT be populated on Disconnect Orders.                                       |
| Billing Contact Telephone Number Extension     | Identifies the telephone number extension of the billing contact   | String    | 6          | Prohibited  | This value MUST NOT be populated on Disconnect Orders.                                       |
| Billing Contact Email Address                  | Identifies the electronic mail address of the Billing Contact when a Buyer profile does not already exist.       | String    | 60         | Prohibited  | This value MUST NOT be populated on Disconnect Orders.                                       |
| <b>Buyer Order Contact</b>                     |  |           |            |             |  |
| Buyer Order Contact Name                       | Identifies the name of the person or office that is buying the product.  | String    | 50         | Required    | This value is REQUIRED when the Order is not being Cancelled.                                |
| Buyer Order Contact Telephone Number           | Identifies the telephone number (excluding extension) of the Buyer Order Contact.                                | String    | 15         | Required    | This value is REQUIRED when the Order is not being Cancelled.                                |
| Buyer Order Contact Telephone Number Extension | Identifies the telephone number extension of the Buyer Order Contact.  | String    | 6          | Optional    | This value MAY only be populated when the associated Telephone Number is provided.           |
| Buyer Order Contact Email Address              | Identifies the electronic mail address of the Buyer Order Contact when a Buyer profile does not already exist.   | String    | 60         | Conditional | This value is REQUIRED when the Order Contact doesn't have a profile in the Seller's system. |
| <b>Buyer Implementation Contact</b>            |  |           |            |             |  |

| Order Attribute                                    | Description   | Data Type   | Max Length | Disconnect | Requirements   |
|--|---|-------------|------------|------------|--|
| Buyer Implementation Contact Name                  | Identifies the name of the person or office that will be contacted during the service turn up and implementation. This is typically the person who accepts the service. | String      | 50         | Prohibited | This value MUST NOT be populated on Disconnect Orders. |
| Buyer Implementation Contact Telephone Number      | Identifies the telephone number (excluding extension) of the Buyer Implementation Contact.  | String      | 15         | Prohibited | This value MUST NOT be populated on Disconnect Orders. |
| Implementation Contact Telephone Number Extension  | Identifies the telephone number extension of the Buyer Implementation Contact.  | String      | 6          | Prohibited | This value MUST NOT be populated on Disconnect Orders. |
| Buyer Implementation Contact Email Address         | Identifies the electronic mail address of the Buyer Implementation Contact.   | String      | 60         | Prohibited | This value MUST NOT be populated on Disconnect Orders. |
| <b>Buyer Technical Contact</b>                     |   |             |            |            |  |
| Buyer Technical Contact Name                       | Identifies the name of the person or office that will be contacted during the service design for additional questions or concerns.                                      | String      | 50         | Prohibited | This value MUST NOT be populated on Disconnect Orders. |
| Buyer Technical Contact Telephone Number           | Identifies the telephone number (excluding extension) of the Buyer Technical Contact Name.  | String      | 15         | Prohibited | This value MUST NOT be populated on Disconnect Orders. |
| Buyer Technical Contact Telephone Number Extension | Identifies the telephone number extension of the Buyer Technical Contact.   | String      | 6          | Prohibited | This value MUST NOT be populated on Disconnect Orders. |
| Buyer Technical Contact Email Address              | Identifies the electronic mail address of the Buyer Technical Contact.  | String      | 60         | Prohibited | This value MUST NOT be populated on Disconnect Orders. |
| Pricing Method                                     | The pricing authority to be used to price the products on this order. Choice of Tariff, Contract, Individual Case Basis (ICB), Other                                    | Enumeration |            | Prohibited | This value MUST NOT be populated on Disconnect Orders. |
| Pricing Reference                                  | The value associated with the Pricing Method selected (e.g. a contract or tariff id).   | String      | 25         | Prohibited | This value MUST NOT be populated on Disconnect Orders. |
| Pricing Term                                       | The length of the contract in months.   | Integer     | 3          | Prohibited | This value MUST NOT be populated on Disconnect Orders. |

| Order Attribute                                     | Description   | Data Type | Max Length | Disconnect | Requirements   |
|---|---|-----------|------------|------------|--|
| Promotion ID  | A set of characters identifying a promotion. Company specific.  | String    | 18         | Prohibited | This value MUST NOT be populated on Disconnect Orders.   |
| Note  | Free form text to clarify or explain the order.   | String    | 300        | Optional   |  |
| Serviceability Response Identifier                  | Value that associates this order with a previously assigned serviceability response.  | String    | 20         | Prohibited | This value MUST NOT be populated on Disconnect Orders.   |
| <b>Items to be deleted</b>                          |   |           |            |            |  |
| Partner/Access Provider (Seller) Network Identifier | One or more of the following Seller-assigned values may be included: <ul style="list-style-type: none"> <li>· OVC Identifier</li> <li>· EVC Identifier</li> <li>· UNI Identifier</li> <li>· ENNI Identifier</li> </ul>                        | String    | 45         | Required   | <p>If an OVC Identifier is provided, then the Seller will disconnect the OVC connection ONLY.</p> <p>If the Buyer wishes to disconnect the UNI or ENNI circuit as well, then the UNI ID and/or ENNI ID must also be provided as an Order Item or separately provided on a subsequent Order.</p> <p>If an EVC Identifier is provided, then the Seller will disconnect the EVC Connection ONLY.</p> <p>If the Buyer wishes to disconnect any of the UNI components, then the UNI IDs must also be provided as Order items or provided separately on subsequent Orders.</p> |
| Service Provider (Buyer) Network Identifier         | One or more of the following Buyer-assigned values may be included: <ul style="list-style-type: none"> <li>· Buyer OVC Identifier</li> <li>· Buyer EVC Identifier</li> <li>· Buyer UNI Identifier</li> <li>· Buyer ENNI Identifier</li> </ul> | String    | 45         | Optional   | This information is informational to the Seller and not required in order to disconnect the service or service component.  |

Table 8 – Disconnect Ordering Attributes - Use Case 3

## 7.6 Query Order Details Use Case Attributes

The below table defines the attributes associated with Query Order Details (Use Case 4). A request initiated by the Buyer to query the details associated with a specific order.

The Buyer initiates this Use Case to query the details associated with a specific Order. The response contains a full representation of the Order, including State, as it currently exists in the Seller's system.

| Order Attribute                     | Description   | Data Type | Max Length | Query Pending Order | Requirements   |
|-------------------------------------|---|-----------|------------|---------------------|--|
|                                     |   |           |            | Request             |  |
| Order ID                            | Unique identifier for the order that is generated by the Seller when the order is initially accepted via an API.  | String    | 45         | Required            | This value MUST be provided by the Seller on all response messages. This value MUST remain the same for the life of the Order. |
| Service Provider (Buyer) ID         | A Party Role played by an Individual or an Organization that buys products and services from a Seller. Specifically, the ID of the Service Provider (Buyer) organization placing the order. | String    | 25         | Required            | This value MUST match the value used on the Order request when initiating any other Ordering Use Case.                         |
| Partner/Access Provider (Seller) ID | A Party Role played by an organization that provides products and services to a Buyer. Specifically, the ID of the Partner/Access Provider (Seller) organization receiving the order.       | String    | 25         | Required            | This value MUST match the value used on the Order request when initiating any other Ordering Use Case.                         |
| Buyer Purchase Order Number         | A number that uniquely identifies an order within the Buyer's enterprise.   | String    | 16         | Required            | This value MUST match the value used on the Order request.   |

Table 9 – Query In-Flight Order Ordering Attributes (Use Cases 4)

## 7.7 Notify Order Status & Complete Order Use Case Attributes

The below table defines the attributes associated with Notify Order Status (Use Case 7) and Complete Order (Use Case 8). The Seller initiates this Use Case to notify the Buyer of changes in Order State and to provide additional Seller-assigned order information. Each notification updates previous information about the Order. For example, if errors were provided on Notification #1, and when Notification #2 is provided, it did not contain any errors, then the Order would no longer have errors that the Buyer needed to address from Notification #1.

| Order Attribute             | Description  | Data Type | Max Length | Conditionality | Requirements   |
|-----------------------------|--|-----------|------------|----------------|--|
| Order ID                    | Unique identifier for the order that is generated by the Seller when the order is initially accepted via an API. | String    | 45         | Required       | This value MUST be provided by the Seller on all response messages. This value MUST remain the same for the life of the Order. |
| Service Provider (Buyer) ID | A Party Role played by an Individual or an Organization that buys products and                                   | String    | 25         | Required       | This value MUST match the value used on the Order request.   |

| Order Attribute                     | Description  | Data Type   | Max Length | Conditionality | Requirements  |
|-------------------------------------|--|-------------|------------|----------------|---|
|                                     | services from a Seller. Specifically, the ID of the Service Provider (Buyer) organization placing the order.   |             |            |                |   |
| Partner/Access Provider (Seller) ID | A Party Role played by an organization that provides products and services to a Buyer. Specifically, the ID of the Partner/Access Provider (Seller) organization receiving the order.  | String      | 25         | Required       | This value MUST match the value used on the Order request when initiating.  |
| Buyer Purchase Order Number         | A number that uniquely identifies an order within the Buyer's enterprise.  | String      | 16         | Required       | This value MUST match the value used on the Order request.  |
| Buyer Order Version                 | The version number that the Buyer uses to refer to this version of the order.  | String      | 2          | Required       | This value MUST be provided by the Seller when responding to a request.   |
| Notification Type                   | Identifies the type of notification.   | Enumeration |            | Required       | Values are: <ul style="list-style-type: none"> <li>• CANCELLED</li> <li>• FAILED</li> <li>• COMPLETED</li> <li>• CONFIGURED</li> <li>• CONFIRMED</li> <li>• JEOPARDY</li> <li>• HELD</li> <li>• STATE_UPDATE</li> </ul> |
| Notification Version Number         | The version number that the Seller uses to refer to this version of the Notification. The initial value is set 01 and is incremented as subsequent Notifications are generated. This value is not associated to the Buyer Order Version. | String      | 2          | Required       | This value MUST be incremented on each Notification sent by the Seller to the Buyer.  |
| Project ID                          | An identifier that is used to group Orders that represent a unit of functionality that is important to a Buyer. A Project can be used to relate multiple Orders together.  | String      | 16         | Optional       | The Seller SHOULD return the Project ID if it is populated on the Order.  |
| Correction Order Expected           | Indicates if the Notification requires a corrected/amended Order to be submitted to the Seller to resolve issues with the Order.   | Boolean     |            | Required       | Valid Values: True or False   |
| Correction Order Due Date           | Date by which the corrected/amended Order must be sent to the Seller to ensure the existing Order isn't cancelled.   | dateTime    |            | Conditional    | This value MUST be provided if the Correction Order Expected attribute is "True".   |

| Order Attribute           | Description  | Data Type   | Max Length | Conditionality | Requirements   |
|---------------------------|--|-------------|------------|----------------|--|
| Failed Date               | Identifies the date on which the Seller determined the order could not be processed and closed the order. Formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00) |             |            |                | This MUST be provided by the Seller to the Buyer when the notification type = FAILED.<br><br>No further action is permitted on the Order after this notification.  |
| Requested Completion Date | Identifies the Buyer's requested completion date for the Order. Formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00)   | dateTime    |            | Required       | The MUST match the Requested Completion Date submitted on the Order.   |
| Expected Completion Date  | Identifies the date the Seller expects to complete the Order. Formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00)   | dateTime    |            | Conditional    | This value MUST be provided by the Seller when the notification type = CONFIRMED.<br>This value SHOULD NOT be provided when the Order State = Cancelled; in all other scenarios, this value is OPTIONAL.   |
| Completion Date           | Identifies the date the Seller completed the Order. Formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00)   | dateTime    |            | Conditional    | This value MUST be provided by the Seller on the COMPLETED Notification.   |
| Order Cancellation Date   | Identifies the date the Seller cancelled the Order. Formatted as YYYY-MM-DD (e.g. 1997-07-16) or YYYY-MM-DDThh:mmTZD (e.g. 1997-07-16T19:20+01:00)   | dateTime    |            | Conditional    | This value MUST be provided by the Seller on the CANCELLED Notification; in all other Notification types this value MUST NOT be provided.  |
| Cancellation Reason       | Free form text to explain the reason for the cancellation of the Order.  | String      | 300        | Conditional    | This value MAY be provided by the Seller on the CANCELLED Notification.  |
| Order State               | The states as defined by TMF622 and extended to meet MEF requirements will be used to convey during the lifecycle of the Order.  | Enumeration |            | Required       | Order Lifecycle State Values:<br><ul style="list-style-type: none"> <li>- ACKNOWLEDGED</li> <li>- INPROGRESS</li> <li>- CANCELLED</li> <li>- COMPLETED</li> <li>- CONFIRMED</li> <li>- CONFIGURED</li> <li>- REJECTED</li> <li>- PENDING</li> <li>- HELD</li> <li>- JEOPARDY</li> <li>- FAILED</li> <li>- PARTIAL</li> <li>- ASSESSING CANCELLATION</li> <li>- PENDING CANCELLATION</li> </ul> |

| Order Attribute   | Description  | Data Type | Max Length | Conditionality | Requirements  |
|---|--|-----------|------------|----------------|---|
| <b>Seller Order Contact</b>   |  |           |            |                |   |
| Seller Order Contact Name   | Identifies the name of the person or office that is handling the order within the Seller's organization. | String    | 50         | Optional       | This value MAY be provided by the Seller on any Notification type.  |
| Seller Order Contact Telephone Number                                 | Identifies the telephone number (excluding extension) of the Seller Order Contact.                       | String    | 15         | Optional       | This value MAY be provided by the Seller on any Notification type.  |
| Seller Order Contact Telephone Number Extension                       | Identifies the telephone number extension of the Seller Order Contact                                    | String    | 6          | Optional       | This value MAY be provided by the Seller on any Notification type.  |
| Seller Order Contact Email Address                                    | Identifies the electronic mail address of the Seller Order Contact.                                      | String    | 60         | Optional       | This value MAY be provided by the Seller on any Notification type.  |
| Billing Account   | Identifies the Billing Account to use to bill the ordered products                                       | String    | 13         | Conditional    | This value MUST be provided by the Seller when the notification type = CONFIGURED, CONFIRMED, and COMPLETED; in all other Notification types, this value is OPTIONAL.   |
| Notes   | Free form text to clarify or explain the Notification  | String    | 300        | Optional       |   |
| <b>OVC Identifier</b>   |  |           |            |                |   |
| This section is only needed when the Order includes an OVC component. |  |           |            |                |   |
| Seller OVC Identifier   | The circuit identifier that the Seller uses to refer to the OVC.   | String    | 45         | Conditional    | This value MUST be provided by the Seller when the notification type = CONFIGURED, CONFIRMED, and COMPLETED and the order is associated with an OVC; in all other Notification types, this value is OPTIONAL. |
| Buyer OVC Identifier  | The circuit identifier that the Partner/Access Provider (Buyer) uses to refer to the OVC.                | String    | 45         | Optional       |   |
| Order Item Reference  | A reference to an item on the Order to which this Notification applies                                   | String    | 4          | Conditional    | This value MUST be provided when the Seller has not assigned the Seller OVC ID; otherwise this value is OPTIONAL.   |
| <b>EVC Identifier</b>   |  |           |            |                |   |
| This section is needed only when the Order includes an EVC component. |  |           |            |                |   |
| Seller EVC Identifier   | The circuit identifier that the Seller uses to refer to the EVC.   | String    | 45         | Conditional    | This value MUST be provided by the Seller when the notification type = CONFIGURED, CONFIRMED, and COMPLETED and the order is associated with an EVC; in all other Notification types, this value is OPTIONAL. |

| Order Attribute        | Description  | Data Type | Max Length | Conditionality | Requirements   |
|------------------------|--|-----------|------------|----------------|--|
| Buyer EVC Identifier   | The circuit identifier that the Partner/Access Provider (Buyer) uses to refer to the EVC.          | String    | 45         | Optional       |  |
| Order Item Reference   | A reference to an item on the Order to which this Notification applies                             | String    | 4          | Conditional    | This value MUST be provided when the Seller has not assigned the Seller EVC ID; otherwise this value is OPTIONAL.  |
| UNI Identifier         |  |           |            |                | This section must support an array to allow for multiple UNIs to be contained on the same order. It must also allow a single UNI to be returned.   |
| Seller UNI Identifier  | The circuit identifier that the Seller uses to refer to the UNI.                                   | String    | 45         | Conditional    | This value MUST be provided by the Seller when the notification type = CONFIGURED, CONFIRMED, and COMPLETED and the order is associated with an UNI; in all other Notification types, this value is OPTIONAL. Multiple values MAY be returned if more than 1 is ordered. |
| Buyer UNI Identifier   | The circuit identifier that the Partner/Access Provider (Buyer) uses to refer to the UNI.          | String    | 45         | Optional       |  |
| Order Item Reference   | A reference to an item on the Order to which this Notification applies                             | String    | 4          | Conditional    | This value MUST be provided when the Seller has not assigned the Seller UNI ID; otherwise this value is OPTIONAL.  |
| ENNI Identifier        |  |           |            |                | This section is needed only when the Order includes an ENNI component.   |
| Seller ENNI Identifier | The circuit identifier that the Seller uses to refer to the ENNI.                                  | String    | 45         | Conditional    | This value MUST be provided by the Seller when the notification type = CONFIGURED, CONFIRMED, and COMPLETED and the order is associated with an ENNI; in all other Notification types, this value is OPTIONAL.   |
| Buyer ENNI Identifier  | The circuit identifier that the Partner/Access Provider (Buyer) uses to refer to the ENNI.         | String    | 45         | Optional       |  |
| Order Item Reference   | A reference to an item on the Order to which this Notification applies                             | String    | 4          | Conditional    | This value MUST be provided when the Seller has not assigned the Seller ENNI ID; otherwise Optional.   |
| S-VLAN Identifier      | The S-VLAN ID assigned by the Seller for this service or the first S-VLAN ID when a range is used. | String    | 4          | Conditional    | This value MUST be provided by the Seller when the notification type = CONFIGURED, CONFIRMED, and COMPLETED and the order is associated with an S-VLAN; in all other Notification types, this value is OPTIONAL.   |



| Order Attribute        | Description   | Data Type   | Max Length | Conditionality | Requirements   |
|------------------------|---|-------------|------------|----------------|--|
| S-VLAN Identifier Last | The S-VLAN ID assigned by the Seller for this service when a range is used.                       | String      | 4          | Conditional    | This value MUST be provided when more than 1 S-VLAN is assigned.   |
| Order Message          |   |             |            |                | An optional array of messages associated with the Order Notification.  |
| Code                   | The code associated with the Message.   | String      | 12         | Optional       |  |
| Field                  | The field/attribute on the Order associated with message  | String      | 100        | Optional       |  |
| Message Information    | A description of the error condition or information to be conveyed to the Buyer.                  | String      | 150        | Required       |  |
| Severity               | Indicates the type of message.  | Enumeration |            | Required       | Valid Values:<br><ul style="list-style-type: none"> <li>• ERROR</li> <li>• INFORMATION</li> </ul>            |
| Order Item Reference   | A reference to an item on the Order to which this Notification applies                            | String      | 4          | Conditional    | This value MUST be provided when the message applies to a particular Order Item; otherwise it is prohibited. |
| Correction Required    | Indicates whether the Buyer must submit an updated Order to resolve the Error/Jeopardy condition. | Boolean     |            | Required       | Valid Values = True or False   |

Table 10 – Notify Order Status and Complete Order Ordering Attributes (Use Cases 7, 8)

## 7.8 Query Order List Use Case Attributes

The below table defines the attributes associated with Query Order List (Use Case 9). A request initiated by the Buyer to obtain a list of all orders that meet specified criteria within the Seller's system. The successful response to this query contains a list of Order IDs and their associated Order State. Error handling conditions will be further defined in the Sonata Ordering Interface Profile Specification.

| Order Attribute   | Description   | Data Type   | Query Order List |          | Requirements  |
|---|---|-------------|------------------|----------|---|
|   |   |             | Max Length       | Query    |   |
| Service Provider (Buyer) ID   | A Party Role played by an Individual or an Organization that buys products and services from a Seller. Specifically, the ID of the Service Provider (Buyer) organization placing the order. | String      | 25               | Required | This value MUST match the value used on the Order request when initiating any other Ordering Use Case.  |
| Partner/Access Provider (Seller) ID   | A Party Role played by an organization that provides products and services to a Buyer. Specifically, the ID of the Partner/Access Provider (Seller) organization receiving the order.       | String      | 25               | Required | This value MUST match the value used on the Order request when initiating any other Ordering Use Case.  |
| Variable items for the query: Query by Date Range, Site Company Name, Site Customer Name, Site Name, Project ID, Address, Order State |   |             |                  |          |   |
| To Query by Date Range  |   |             |                  |          |   |
| Query Date Range Type   |   | Enumeration |                  | Required | The date range query option can be applied to various dates on the Order. The following values may be selected: <ul style="list-style-type: none"> <li>Buyer Request Date</li> <li>Order Date</li> <li>Requested Start Date</li> <li>Requested Completion Date</li> <li>Expected Completion Date</li> <li>Completion date</li> <li>Order Cancellation date</li> </ul> |
| Query Date Range – Begin Date   | Beginning Date for query range  | dateTime    |                  | Required | This value MUST be provided by the Buyer when providing a query that spans multiple dates   |
| Query Date Range – End Date   | Beginning Date for query range  | dateTime    |                  | Required | This value MUST be provided by the Buyer when providing a query that spans multiple dates   |
| To Query by Site Company Name   |   |             |                  |          |   |
| Site Company Name   | The name of the company that is located at the service location. This may be different from the name of the Buyer that ordered services at that site.                                       | String      | 25               | Required | This value MUST be provided by the Buyer when providing a query for a specific Site Company Name.   |
| To Query by Site Customer Name  |   |             |                  |          |   |
| Site Customer Name  | The customer name at a site where the service is being delivered.   | String      | 25               | Required | This value MUST be provided by the Buyer when providing a query for a specific Site Customer Name.  |
| To Query by Site Name   |   |             |                  |          |   |
| Site Name   | A name by which the site is known.  | String      | 60               | Required | This value MUST be provided by the Buyer when providing a query for a specific Site Name.   |
| To Query by Project ID  |   |             |                  |          |   |
| Project ID  | An identifier that is used to group Orders that represent a unit of functionality that is important to a Buyer. A Project   | String      | 16               | Required | This value MUST be provided by the Buyer when providing a query for a specific Project ID   |

|  |  |             |    |             |   |
|--|--|-------------|----|-------------|---|
|  | can be used to relate multiple Orders together.  |             |    |             |   |
| <b>To Query by Address</b>   |  |             |    |             |   |
| Site Address Type  | Identifies the type of address to be provided for the service location. Sections below are required based on Site Address Type selected. | Enumeration |    | Required    | This value MUST be provided by the Buyer when providing a query for a specific Address: Valid Values: <ul style="list-style-type: none"> <li>• FieldedAddress</li> <li>• FormattedAddress</li> <li>• AddressReference</li> <li>• GeographicPoint</li> </ul> |
| <b>Based on selection of Site Address Type, the following formats apply:</b> |  |             |    |             |   |
| <b>To Query by Fielded Address</b>   |  |             |    |             |   |
| Street Number  | Number identifying a property on a public street. It may be combined with Street Number Last for ranged addresses                        | String      | 10 | Optional    |   |
| Street Number Suffix   | The suffix of the first street number (in a street number range) or the suffix for the street number if there is no range.               | String      | 10 | Optional    |   |
| Street Number Last   | Last number in a range of street numbers allocated to an address.  | String      | 10 | Optional    |   |
| Street Number Suffix Last  | The suffix of the last street number in a range of street numbers.   | String      | 10 | Optional    |   |
| Street Name  | The name of the street or other street type.   | String      | 60 | Conditional | This value is REQUIRED when the Address Type = FieldedAddress   |
| Street Type  | The type of street (e.g., Street, St., Road, Rd., Alley).  | String      | 25 | Conditional | This value is REQUIRED when the Address Type = FieldedAddress   |
| Street Suffix  | A modifier denoting a relative direction.  | String      | 2  | Optional    |   |
| Sub Unit Type  | The type of subunit (e.g., Flat, Suite, Tower, Unit).  | String      | 25 | Optional    |   |
| Sub Unit Number  | The discriminator used for the subunit, often just a simple number but may also be a range.  | String      | 10 | Optional    |   |
| Level Type   | Describes level types within a building (e.g., Floor)  | String      | 25 | Optional    |   |
| Level Number   | Used where a Level Type has been populated. This value is may be a simple number or description, such as "Basement".                     | String      | 25 | Optional    |   |
| Building Name  | Allows for buildings with well-known names to be used in an address.   | String      | 60 | Optional    |   |
| Private Street Number  | The number associated to the private street name.  | String      | 10 | Optional    |   |
| Private Street Name  | Private streets internal to a property (e.g., a university) with an internal name not recorded by the land title office.                 | String      | 60 | Optional    |   |
| Locality   | A bounded locality within a city, town or shire principally of urban character.  | String      | 50 | Optional    |   |
| City   | The city that the address is in.   | String      | 50 | Conditional | This value is REQUIRED when the Address Type = FieldedAddress   |
| State or Province  | The state or province that the address is in.  | String      | 50 | Conditional | This value is REQUIRED when the Address Type = FieldedAddress   |
| Postal Code  | A descriptor for a postal delivery area, used to speed and simplify the delivery of mail.  | String      | 6  | Conditional | This value is REQUIRED when the Address Type = FieldedAddress   |
| Postal Code Extension  | The four-digit extension on an American postal code, what  | String      | 4  | Optional    | This value MAY only be populated when the associated Postal Code is provided.   |

|                               |   |             |    |             |   |
|-------------------------------|---|-------------|----|-------------|---|
|                               | comes after the hyphen when specified.  |             |    |             |   |
| Country                       | The country that the address is in.   | String      | 50 | Conditional | This value is REQUIRED when the Address Type = FieldedAddress   |
| To query by Formatted Address |   |             |    |             |   |
| Formatted Address Line1       | A formatted address line that contains a non-fielded street address.  | String      | 60 | Conditional | This value is REQUIRED when the Address Type = FormattedAddress   |
| Formatted Address Line2       | A formatted address line that contains a non-fielded street address, sub-address (e.g. Suite number), etc.                      | String      | 60 | Optional    |   |
| Locality                      | A bounded locality within a city, town or shire principally of urban character.   | String      | 50 | Optional    |   |
| City                          | The city that the address is in   | String      | 50 | Optional    |   |
| State or Province             | The state or province that the address is in.   | String      | 50 | Conditional | This value is REQUIRED when the Address Type = FormattedAddress   |
| Postal Code                   | A descriptor for a postal delivery area, used to speed and simplify the delivery of mail.                                       | String      | 6  | Conditional |   |
| Postal Code Extension         | The four-digit extension on an American postal code, what comes after the hyphen when specified.                                | String      | 4  | Optional    | This value MAY only be populated when the associated Postal Code is provided.   |
| Country                       | The country that the address is in.   | String      | 50 | Conditional | This value is REQUIRED when the Address Type = FormattedAddress   |
| To query by Address Reference |   |             |    |             |   |
| Address Reference ID          | A reference to an address by id; this would include such things CLLI Codes or Seller-assigned address identifiers.              | String      | 60 | Conditional | This value is REQUIRED when the Address Type = AddressReference   |
| To query by Geographic Point  |   |             |    |             |   |
| Longitude/Latitude            | A geometric point on earth, which can include a latitude, longitude, and elevation in "decimal degrees" format.                 | String      | 10 | Conditional | This value is REQUIRED when the Address Type = GeographicPoint  |
| To query by Order State       |   |             |    |             |   |
| Order State                   | The states as defined by TMF622 and extended to meet MEF requirements will be used to convey during the lifecycle of the Order. | Enumeration |    | Optional    | Order Lifecycle State Values:<br>- ACKNOWLEDGED<br>- IN PROGRESS<br>- CANCELLED<br>- COMPLETED<br>- CONFIRMED<br>- CONFIGURED<br>- REJECTED<br>- PENDING<br>- HELD<br>- JEOPARDY<br>- FAILED<br>- PARTIAL<br>- ASSESSING CANCELLATION<br>- PENDING CANCELLATION |

## 8 Order and Order Item State Diagrams

State diagrams are used to give an abstract description of the behavior of a system. This behavior is analyzed and represented in series of events, that could occur in one or more possible states. The below state diagram definitions and diagrams are adapted from TMF622 (Product Ordering API REST Specification) and should be used to convey Order state and Order Item state during the life of an Order.

### Order-Level States:

- **ACKNOWLEDGED**
  - An Order has been received and has passed message and basic business validations.
- **REJECTED**
  - An Order was submitted and one of the following has occurred:
    - the Order has failed feasibility check
    - invalid information was provided on the Order
    - the Order fails to meet business rules for ordering.
- **IN PROGRESS**
  - The Order has passed the order feasibility check successfully and service delivery has started.
- **PENDING**
  - The Order is currently in a waiting stage for an action/activity to be completed before the Order can progress further, pending Order amend or cancel assessment. In situations where Buyer action is required, a notification will be issued by the Seller to the Buyer. A pending state can lead into auto cancellation of the Order if no action is taken within the defined timeframes.
- **HELD**
  - The Order cannot be progressed due to an issue on either the Buyer or Seller side and the Seller has temporarily delayed completing the Order. Upon resolution of the issue, the Order will continue to progress. The Order may be cancelled if the issue cannot be resolved in an adequate timeframe.
- **CONFIGURED**
  - Prior to confirmation of the order, the Seller configures Seller-specific data such as Billing Account Number, Seller UNI ID, Seller ENNI ID, Seller OVC ID, etc.
- **CONFIRMED**
  - The Order is committed to delivery and the Seller assigns the Expected Completion Date.
- **JEOPARDY**
  - The Order is in danger of not meeting its Expected Completion Date. The Seller may request that a new, corrected Order be submitted via the Amend In-flight Order Use Case process.
- **ASSESSING\_CANCELLATION**
  - A request has been made by the Buyer or Seller to cancel the order and the Order is currently being assessed to determine whether it can be cancelled.
- **PENDING\_CANCELLATION**
  - The cancellation request has been assessed and it has been determined that it is feasible to proceed with the cancellation.
- **CANCELLED**
  - The in-flight Order has been successfully cancelled.
- **PARTIAL**
  - Some Order items have failed, and some have succeeded so the entire Order is in a Partial state. This provides support for partial failure of an Order. This is an end state.
- **FAILED**
  - All Order items have failed which results in the entire Order failing. This is an end state.
- **COMPLETED**
  - The in-flight Order has completed provisioning and the service is now active. This is an end state.

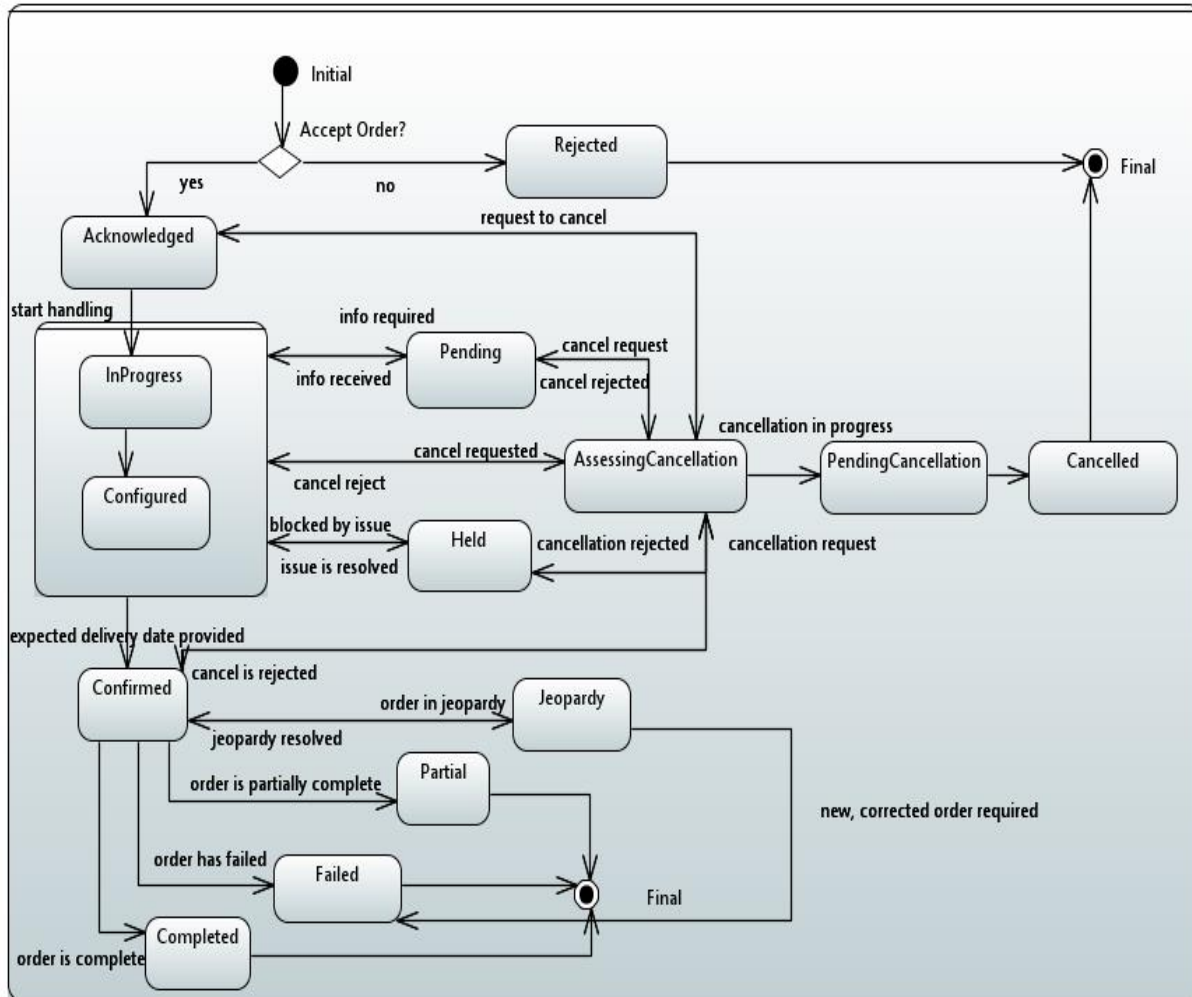


Figure 6 - Sonata Ordering State Machine Diagram

Order Item Level States:

- **ACKNOWLEDGED**
  - An order has been received and has passed message and basic business validations.
- **REJECTED**
  - An Order was submitted and one of the following has occurred:
    - the Order has failed feasibility check
    - invalid information was provided on the Order
    - the Order fails to meet business rules for ordering.
- **IN PROGRESS**
  - The Order Item has passed the order feasibility check successfully and service delivery has started.
- **PENDING**
  - The Order Item is currently in a waiting stage for an action/activity to be completed before the Order Item can progress further. In situations where Buyer action is required, a notification will be issued by the Seller to the Buyer. A Pending state can lead into auto cancellation of the Order if no action is taken within the defined timeframes.
- **HELD**

- The Order Item cannot be progressed due to an issue on either the Buyer or Seller side and the Seller has temporarily delayed completing the Order Item. Upon resolution of the issue, the Order Item will continue to progress. The Order may be cancelled if the issue can not be resolved in an adequate timeframe.
- CONFIGURED
  - Prior to confirmation of the Order, the Seller configures Seller-specific data such as Billing Account Number, Seller UNI ID, Seller ENNI ID, Seller OVC ID, etc.
- ASSESSING\_CANCELLATION
  - A request has been made by the Buyer or Seller to cancel the order and the Order Item is currently being assessed to determine whether it can be cancelled or not.
- PENDING\_CANCELLATION
  - The cancellation request has been assessed and it has been determined that it is feasible to proceed with the cancellation.
- CANCELLED
  - The in-flight order has been successfully cancelled. This is an end state.
- FAILED
  - An Order Item has failed which results in the Order State being Failed or Partial. This is an end state.
- COMPLETED
  - An order has completed provisioning and the service is now active. This is an end state.

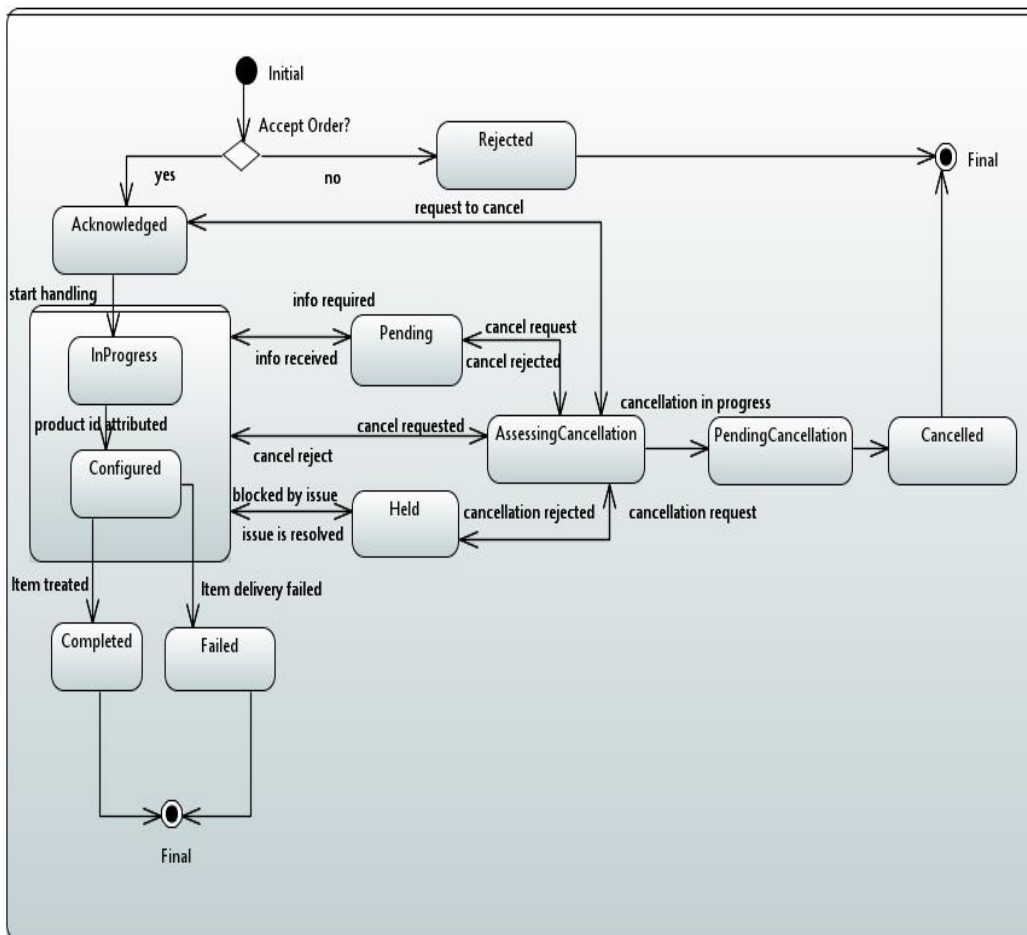


Figure 7 - Sonata Order Item State Machine Diagram

## 9 References

- ATIS-0300253, Structure for the Representation of Location Entities for Information Exchange, December 2016
- IETF RFC 2119, Key words for use in RFCs to Indicate Requirement Levels, March 1997.
- IETF RFC 3198
- [MEF 4] MEF Forum, Carrier Ethernet Network Architecture Framework – Part 1: Generic Framework, MEF 4, April 2004.
- [MEF 10.3] MEF Forum, Ethernet Service Attributes Phase 3, MEF 10.3, October 2013.
- [MEF 12.2] MEF Forum, Carrier Ethernet Network Architecture Framework Part 2: Ethernet Services Layer, May 2014
- [MEF 26.1] MEF Forum, External Network Network Interface (ENNI) – Phase 2, MEF 26.1, January 2012.
- [MEF 26.2] MEF Forum, EVC Ethernet Services Definitions – Phase 3, August 2014.
- [MEF 50.1] MEF Forum, MEF Services Lifecycle Process Flows, MEF 50.1, August 2017.
- [MEF 51] MEF Forum, OVC Services Definitions, August 2015.
- [MEF 55] MEF Forum, LSO Reference Architecture, March 2016.
- [TMF622] TM Forum, TMF622 Product Ordering API REST Specification R17.5.1, May 2018.