



**MEF**

**J-SPEC-001 / MEF 57**

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

**Joint Standard**

**July 2017**



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# 1. List of Contributing Member Companies

The following Member companies of the MEF Forum and Alliance for Telecommunication Industry Solutions (ATIS) participated in the development of this document.

Member Companies	
AT&T	Innovative Systems
Amdocs	Level3
Bell Canada	National Exchange Carrier Association (NECA)
CableLabs	National Information Solution Coop (NISC)
CenturyLink	Neustar, Inc.
Charter Communications	Oracle Communications
Comcast	PCCW Global
CommSoft	PLDT Corp. Business Solutions
Communications Data Group	Sigma Systems Canada
Cox Communications	Sprint
Creative Support Solutions	Strategic Options Business Consulting
CSG International	Synchronoss Technologies
Ericsson	TDS
FairPoint Communications, Inc.	TEOCO Corp
Hawaiian Telcom	T-Mobile
Horry Telephone Cooperative (HTC)	Verizon
Huawei	West Corporation
iconectiv	

Table 1 - Contributing Member Companies

## 2. 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.

## 3. 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.

<b>Term</b>	<b>Definition</b>	<b>Reference</b>
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, and first official offer issued by a Buyer to a Seller, indicating 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
Carrier Ethernet Network (CEN)	A network from a Service Provider or network operator supporting the MEF service and architecture models.	MEF 12.1
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
Data Model	A mapping of the contents of an information model into a form that is specific to a particular type of data store or repository. A "data model" is basically the rendering of an information model according to a specific set of mechanisms for representing, organizing, storing and handling data.	IETF RFC 3198
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

<b>Term</b>	<b>Definition</b>	<b>Reference</b>
Geographic Point	A geometric point on Earth, which can include a latitude, longitude, and elevation, corresponding to the location of service, such as a Site Address, a Site CLLI Code or a Site Geographic Point.	This document
Information Model	An abstraction and representation of the entities in a managed environment, their properties, attributes and operations, and the way that they relate to each other. It is independent of any specific repository, software usage, protocol, or platform.	IETF RFC 3198
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
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
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.  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
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 Subscriber.	MEF 10.3

Term	Definition	Reference
Unified Modeling Language (UML)	Unified Modeling Language (UML) is a graphical language for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system. The UML offers a standard way to write a system's blueprints, including conceptual things such as business processes and system functions as well as concrete things such as programming language statements, database schemas, and reusable software components."	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 2.5

Table 2 - Terminology and Acronyms

## 4. 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.

## 5. 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.

## 6. 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 7 defines the Use Cases and Order Management Scenarios, Section 8 defines the specific ordering

attributes associated with the product orders supported in this document and Section 9 provides the State Diagram for Product Ordering. Implementation details will be separately published in an Interface Profile Specification.

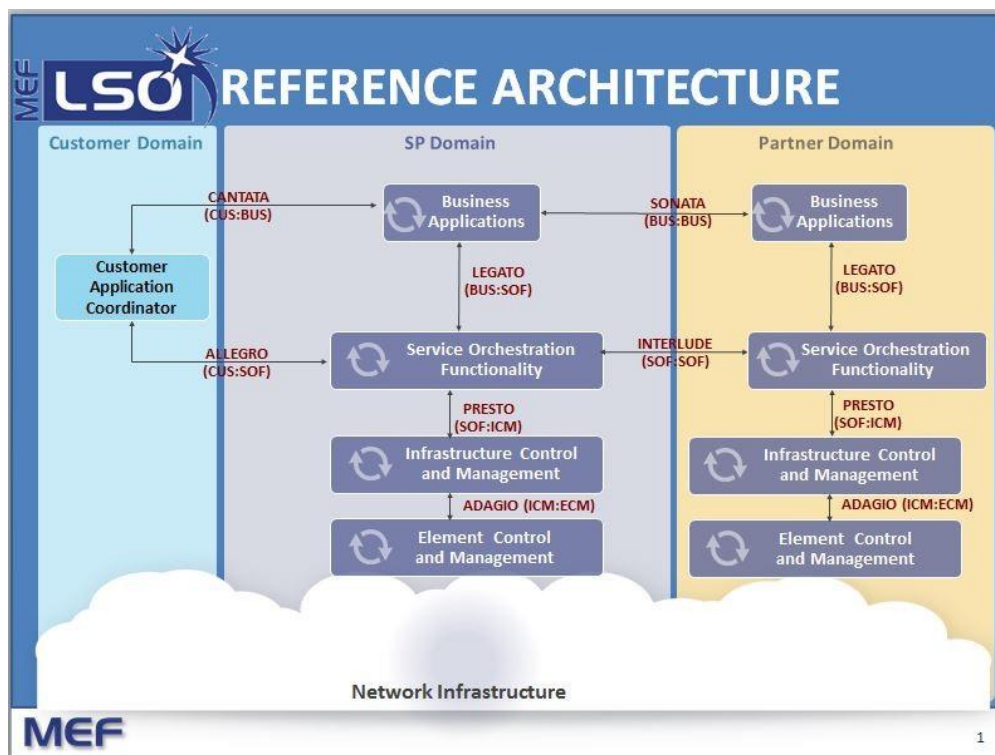


Figure 1 - Lifecycle Service Orchestration Reference Architecture (LSO RA) diagram

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.

## 6.1 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.