



MEF Standard

MEF 55.1.1

**Amendment to MEF 55.1: Reference
Architecture and Framework - Terminology**

October 2023

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Table of Contents

1	List of Contributing Members	4
2	Abstract	4
3	Introduction	5
4	Changes to Section 3	6
5	Changes to Section 8.1	16
6	Changes to Section 8.2.2	17
7	Changes to Section 10.2.2	18
8	Changes to Section 10.3.2	19
9	Changes to Section 10.4.1	20
10	Changes to Section 10.5.1	21
11	Changes to Section 10.7.1	22
12	Changes to Section 11	23
13	Changes to Section 11.1	25
14	Changes to Section 11.2	26
15	Changes to Appendix A	27
16	References	31
	Appendix D Acknowledgements	32

List of Figures

Figure 10 - A View of Management Abstractions

23

List of Tables

Table 1 – Terminology and Abbreviations	15
Table 4 – Examples of High-Level Interactions per LSO Management Interface Reference Point	30

1 List of Contributing Members

The following members of the MEF participated in the development of this document and have requested to be included in this list.

- Cisco Systems
- Proximus
- Verizon

2 Abstract

The normative changes in this amendment are to improve the definitions of certain terms defined in MEF 55.1, and to add definitions for other terms that are commonly used in other MEF LSO Standards. The amendment also makes editorial changes to order the terminology table correctly and align the body of the document with the clarified terminology.

3 Introduction

This amendment updates the Terminology and Definitions. The updates are detailed below.

- Table 1 - Update Terminology and Abbreviations
- Section 8.1 - Update to replace Product Instance with Product
- Section 8.2.2 - Update to replace Product Instances with Product
- Section 10.2.2 - Update to replace one Product with Product Offering and three Product Instance with Product
- Section 10.3.2 - Update to replace Product Instance with Product
- Section 10.4.1 - Update to replace two Product Instances with Product
- Section 10.5.1 - Update to replace two Product Instances with Product
- Section 10.7.1 - Update to replace Product Instances with Product
- Section 11 - Update to replace seven Product Instance with Product
- Section 11.1 - Update to replace five Product Instance with Product
- Section 11.2 - Update to replace Product Instance with Product
- Appendix A - Update to replace five Product Instance with Product

In this amendment, changes are shown as follows:

- Instructions for how to apply the amendment are shown in *blue italics*
- In content modified by the amendment, text to be removed is shown with ~~red strikethrough~~
- In content modified by the amendment, text to be added is shown in red

4 Changes to Section 3

Replace Table 1 with Table 1 below.

Term	Definition	Reference
Adagio (ICM:ECM)	The element Management Interface Reference Point needed to manage the network resources, including element view related management functions.	This document
Agile	Relating to a Service Provider's ability to rapidly introduce new, on demand services using new technologies without disrupting their top-to-bottom operational environment. Agility can be achieved via proper product / service / resource abstractions using APIs and orchestration.	This document
Allegro (CUS:SOF)	The Management Interface Reference Point that allows Customer Application Coordinator supervision and control of dynamic service of the LSO service capabilities under its purview through interactions with the Service Orchestration Functionality.	This document
Application Program Interface (API)	In the context of 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.	This document
Assured	Relating to the Customer's expectations that a Service will provide consistent performance and security assurances to meet their needs.	This document
BUS-partner	Business Applications in the Partner domain.	This document
BUS-sp	Business Applications in the Service Provider domain.	This document
Business Applications (BUS)	The Service Provider functionality supporting Business Management Layer functionality.	This document
BUS-partner	Business Applications in the Partner domain.	This document
Business Process Flow	Graphically represents the behavior of Process Elements in an "end-to-end" or "through" Process view across the business (i.e., Enterprise).	TMF GB921P [33]
BUS-sp	Business Applications in the Service Provider domain.	This document

Term	Definition	Reference
Buyer	Denotes the organization acting as the customer in a transaction over the Cantata Interface Reference Point (Subscriber <-> Service Provider) or the Sonata Interface Reference Point (Service Provider <-> Partner).	This document
Cantata (CUS:BUS)	The Management Interface Reference Point that provides a Customer Application Coordinator (including enterprise Customers) with capabilities to support the operations interactions with the Service Provider's Business Applications for a portion of the Service Provider service capabilities related to the Customer's Products and Services.	This document
Connectivity Service	A service delivering network connectivity (i.e. traffic) among service access points described by a set of both static and/or dynamic service attributes.	This document
Customer	A Customer is the organization purchasing, managing, and/or using Services from a Service Provider ¹ . This may be an end user business organization, mobile operator, cloud operator, or a partner network operator.	This document
Customer Application Coordinator (CUS)	A functional management entity in the Customer domain that is responsible for coordinating the management of the various service needs (e.g., compute, storage, network, etc.) of specific applications.	This document
Data Model	Models managed objects based on an Information Model at a more detailed level using a specific data modeling language. Data modeling languages include XSD, IDL, and YANG.	IETF RFC 3444 [6]
Element Control and Management (ECM)	The set of functionality supporting element management layer capabilities for individual network elements.	This document
Element Management System (EMS)	A management system used to manage the individual network elements as well as the networks that connect them. One or more EMSs may be deployed within a Service Provider management domain depending on the different supplier products and geographic distribution of the network elements in the network.	MEF 7.3 [10] [12]
Ethernet Virtual Connection (EVC)	An association of EVC End Points.	MEF 10.4 [12] [13] Error! Reference source not found.

Term	Definition	Reference
Extensible Markup Language (XML)	A markup language that defines a set of rules for encoding documents in a format which is both human-readable and machine-readable.	W3C XML [37]
External Network Network Interface (ENNI)	A reference point representing the boundary between two Operator CENs that are operated as separate administrative domains.	MEF 26.2 [6] [17]
Forwarding Construct (FC)	Enabled forwarding between two or more LTPs which supports any transport protocol including all circuit and packet forms.	ONF TR-512.1 [30] [31]
Forwarding Domain (FD)	The topological component which represents the opportunity to enable forwarding between points represented by LTPs.	ONF TR-512.1 [30] [31]
Functional Management Entity	A set of specific management layer functionality within the LSO Reference Architecture.	This document
Hypertext Transfer Protocol (HTTP)	A stateless application-level protocol for distributed, collaborative, hypertext information systems.	IETF RFC 7230 [7] [8]
Information Model	Models managed objects at a conceptual level, independent of any specific implementations or protocols used to transport the data. Information models may be described using UML class diagrams.	IETF RFC 3444 [5] [6]
Infrastructure Control and Management (ICM)	The set of functionality providing domain specific connectivity, application and topology view resource management capabilities including configuration, control and supervision of the infrastructure.	This document
Interface Profile	Defines the structure, behavior, and semantics supporting a specific Management Interface Reference Point identified in the LSO Reference Architecture. The Interface Profile specification contains all the necessary information to implement the related API, including objects, attributes, operations, notifications, and parameters.	This document
Interlude (SOF:SOF)	The Management Interface Reference Point that provides for the coordination of a portion of LSO services within the partner domain that are managed by a Service Provider's Service Orchestration Functionality within the bounds and policies defined for the service.	This document

Term	Definition	Reference
Interface Profile	Defines the structure, behavior, and semantics supporting a specific Management Interface Reference Point identified in the LSO Reference Architecture. The Interface Profile specification contains all the necessary information to implement the related API, including objects, attributes, operations, notifications, and parameters.	This document
Internal Network Network Interface (INNI)	A reference point representing the boundary between two networks or network elements that are operated within the same administrative domain.	MEF 4 [9] [10]
JavaScript Object Notation (JSON)	A text format that facilitates structured data interchange between all programming languages.	ECMA-404 [37] [1]
Legato (BUS:SOF)	The Management Interface Reference Point between the Business Applications and the Service Orchestration Functionality needed to allow management and operations interactions supporting LSO Services.	This document
Lifecycle Service Orchestration (LSO)	Open and interoperable automation of management operations over the entire lifecycle of Services. This includes fulfillment, control, performance, assurance, usage, security, analytics and policy capabilities, over all the network domains that require coordinated management and control in order to deliver the Service.	This document
Logical Termination Point (LTP)	Termination point that encapsulates the termination, adaptation and OAM functions of one or more transport layers.	ONF TR-512.1 [31]
LSO Reference Architecture	A layered abstraction architecture that characterizes the management and control domains and entities, and the interfaces among them, to enable cooperative orchestration of Services.	This document
Logical Termination Point (LTP)	Termination point that encapsulates the termination, adaptation and OAM functions of one or more transport layers.	ONF TR-512.1 [30]
Management Abstraction	A management view of information categories and high-level information classes that hides the details of the underlying complexity. LSO identifies Management Abstractions for the Product, Service, and Resource views.	This document
Management Interface Reference Point	The logical point of interaction between specific management entities.	This document

Term	Definition	Reference
Network Control Domain	Represents the scope of control that a particular network controller or WAN controller has with respect to a particular network	This document
Network Domain Controller	Manages the subnetwork boundary edge to subnetwork boundary edge aspects of the network connectivity along with the resources and infrastructure under its control within a specific subnetwork domain.	This document
Network Function Virtualisation (NFV)	The principle of separating network functions from the hardware they run on by using virtual hardware abstraction.	ETSI GS NFV 003 [4]
NFV Orchestrator (NFVO)	The functionality that coordinates the management of the connectivity lifecycle, Virtualized Network Functions (VNF) lifecycle, and Network Functions Virtualization Infrastructure (NFVI) resources to ensure an optimized allocation of the necessary supporting resources and connectivity.	ETSI GS NFV-MAN 001 [2]
Object Class	Used to convey the representation of an entity, including behavior, properties and attributes. An instance of an Object Class may be referred to as an Object.	This document
Operational Thread	Describes the high-level Use Cases of LSO behavior as well as the series of interactions among management entities, helping to express the vision of the LSO capabilities. May be further described by a series of detailed use cases spanning a top down approach from Product to Service to Resource.	This document
Operator Virtual Connection (OVC)	An association of OVC End Points	MEF 26.2 16 [17]
Orchestrated	Relating to automated service management across potentially multiple operator networks which includes fulfillment, control, performance, assurance, usage, security, analytics, and policy capabilities, which are achieved programmatically through APIs that provide abstraction from the particular network technology used to deliver the service.	This document
Partner	An organization providing Products and Services to the Service Provider in order to allow the Service Provider to instantiate and manage Service Components external to the Service Provider domain.	This document
PNF	Physical Network Function	ETSI GS NFV 002 2 [3]

Term	Definition	Reference
Physical Network Function	A purpose-built network element providing specific network function (s) consisting of a set of software modules deployed on dedicated hardware.	This document
Presto (SOF:ICM)	The resource Management Interface Reference Point needed to manage the infrastructure, including connectivity, application and topology view related management functions.	This document
Process	A systematic, sequenced set of functional activities that deliver a specified result. In other words, a Process is a sequence of related activities or tasks required to deliver results or outputs.	TMF GB921P [33]
Process Element	The building blocks or components, which are used to ‘assemble’ end-to-end business Processes performed in an organization.	TMF GB921P [33]
Product	The realization of a Product Offering to create a single instance for a specific Buyer.	This document
Product Catalog	Describes the Product Specifications and Product Offerings made available by a Seller to potential Buyers.	This document
Product Offering	Commercial realization of a Product Specification achieved by defining Product Offering Terms and specifying constraints on the possible values of the Product-Specific Attributes and relationships. An externally facing representation of a Service and/or Resource procurable by the Customer.	This document TMF GB922 [34]
Product Offering Configuration	An identifiable set of Product-Specific Attributes and their values.	This document
Product Instance	Specific implementation of a Product Offering dedicated to the benefit of a party.	TMF GB922 [34]
Product Lifecycle	The sequence of phases in the life of a Product Offering, including definition, planning, design and implementation of new Product Offerings, changes for existing Product Offerings, and the withdrawal and retirement of Product Offerings.	MEF 50.1 [21]
Product Offering Terms	Commitment durations under which a Product Offering is available to Buyers.	This document

Term	Definition	Reference
Product Specification	<p>A specification comprising the following, for use with MEF APIs:</p> <ul style="list-style-type: none"> • a set of schemas that define all of the attributes of a Product and their possible values • definition of relationships with other Products and/or locations • ordering milestones • accompanying documentation <p>The detailed description of product characteristics and behavior used in the definition of Product Offerings.</p>	This document TMF GB922 [34]
Product-Agnostic Attribute	An attribute defined by an LSO Cantata/Sonata API which is independent of a Product Offering.	This document
Product-Specific Attribute	An attribute defined within a Product Specification, or a parameter of such an attribute, used to describe an aspect of a Product or Service that is agreed between the Buyer and Seller of the Service.	This document
Resource	A physical or non-physical component (or some combination of these) within a Service Provider's infrastructure or inventory.	TMF GB922 [34]
SDN Controller	Translates SDN applications' requirements and exerts more granular control over network elements, while providing relevant information up to SDN applications.	ONF TR-504 [30]
Seller	Denotes the organization acting as the supplier in a transaction over the Cantata Interface Reference Point (Subscriber <-> Service Provider) or the Sonata Interface Reference Point (Service Provider <-> Partner).	This document
Service	Represents the Customer experience of a Product Instance that has been realized within the Service Provider's and / or Partners' infrastructure.	TMF GB922 [34]
Service Access Point	The endpoint of a specific Service at a Service Interface (e.g., UNI, ENNI).	This document
Service Attribute	Specific information that is agreed between the Buyer and the Seller of the Service, as described in a MEF Standard, that describes some aspect of the Service behavior or capability.	This document
Service Component	A segment or element of a Service that is managed independently by the Service Provider.	This document

Term	Definition	Reference
Service Access Point	The endpoint of a specific Service at a Service Interface (e.g., UNI, ENNI).	This document
Service Interface	A service level demarcation point between administrative domains, including between a Customer and a Service Provider, between two Service Providers, or between internal administrative domains within a single Service Provider. A Service Interface (e.g., UNI, ENNI, INNI) may include a collection of Service Access Points, each representing an endpoint of a specific Service.	This document
Service Level Agreement (SLA)	A contract specifying the service level commitments and related business agreements for a service.	MEF 10.4 [13]
Service Level Specification (SLS)	Technical details of the service level, in terms of Performance Objectives, agreed between the Service Provider and the Customer as part of the Service Level Agreement.	This document; adapted from MEF 10.4 [13]
Service Operations, Administration, and Maintenance (SOAM)	Mechanisms for monitoring connectivity and performance of Services (e.g., Carrier Ethernet).	This document
Service Orchestration Functionality (SOF)	The set of service management layer functionality supporting an agile framework to streamline and automate the service lifecycle in a sustainable fashion for coordinated management supporting design, fulfillment, control, testing, problem management, quality management, usage measurements, security management, analytics, and policy-based management capabilities providing coordinated end-to-end management and control of Services.	This document
Service Specification	The detailed description of the characteristics and behavior of a Service.	TMF GB922 [34]
SOF-partner	Service Orchestration Functionality in the Partner domain.	This document
SOF-sp	Service Orchestration Functionality in the Service Provider (SP) domain.	This document
Software Defined Networking (SDN)	An architecture that provides open interfaces that enable the development of software that can control the connectivity provided by a set of network resources and the flow of network traffic through them, along with possible inspection and modification of traffic that may be performed in the network.	ONF TR-504 [30]

Term	Definition	Reference
Sonata (BUS:BUS)	The Management Interface Reference Point supporting the management and operations interactions (e.g., ordering, billing, trouble management, etc.) between two Operators, e.g., Service Providers and Partners).	This document
Topology and Orchestration Specification for Cloud Applications (TOSCA)	A specification defining the structure, properties and behavior expressed by TOSCA Service Templates.	TOSCA OASIS BPEL2.0 [26]
TOSCA Service Template	The combination of a TOSCA Topology Template and TOSCA Plans (or Orchestration processes). In this document, a TOSCA Service Template can be used for Products or Services or Resources in MEF LSO.	TOSCA OASIS BPEL2.0 [26]
TOSCA Topology Template	A TOSCA Topology Template (also referred to as the topology model of a service) defines the structure of a service. It consists of a set of TOSCA Node Templates and TOSCA Relationship Templates that together define the topology model of a service as a (not necessarily connected) directed graph.	TOSCA OASIS BPEL2.0 [26]
TOSCA Node Template	A node in a topology graph is represented by a TOSCA Node Template. A TOSCA Node Template specifies the occurrence of a TOSCA Node Type as a component of a service.	TOSCA OASIS BPEL2.0 [26]
TOSCA Node Type	A TOSCA Node Type defines the properties and the operations available to manipulate a component of a service.	TOSCA OASIS BPEL2.0 [26]
TOSCA Plans	TOSCA Plans define the (Orchestration) process models that are used to create and terminate a service as well as to manage a service during its whole lifetime. In this document, TOSCA Plans are similar to the term Business Process Flows in some entities, e.g., SOF or ICM, of LSO RA.	TOSCA OASIS BPEL2.0 [26]
TOSCA Relationship Template	A TOSCA Relationship Template specifies the occurrence of a relationship between nodes in a TOSCA Topology Template.	TOSCA OASIS BPEL2.0 [26]
TOSCA Relationship Type	A TOSCA Relationship Type defines the semantics and any properties of the relationship between TOSCA Nodes.	TOSCA OASIS BPEL2.0 [26]

Term	Definition	Reference
TOSCA Plans	<p>TOSCA Plans define the (Orchestration) process models that are used to create and terminate a service as well as to manage a service during its whole lifetime.</p> <p>In this document, TOSCA Plans are similar to the term Business Process Flows in some entities, e.g., SOF or ICM, of LSO-RA.</p>	TOSCA-OASIS BPEL2.0 [26]
Unified Modeling Language (UML)	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.	OMG UML [29]
Use Case	In UML, a Use Case represents one particular type of a system's behavior based on stimuli from an external source (i.e., an actor). A system may have several Use Cases that define all its behavior.	OMG UML [29]
User Network Interface (UNI)	The demarcation point between the responsibility of the Service Provider and the responsibility of the Customer.	This document; Adapted from MEF 11 [14]
Virtual Network Element (VNE)	An abstraction representing a set of network functions providing network element capabilities implemented in a virtualized environment.	This document
VNF	Virtual Network Function	ETSI GS NFV 002 [3]
Virtual Network Function	A network function that is provided through software virtualization techniques.	This document

Table 1 - Terminology and Abbreviations

5 Changes to Section 8.1

Replace the third bullet in this section referencing Product Instance with the following text.

- **Product Instance** to Service mapping rules for each Product Offering

6 Changes to Section 8.2.2

Replace the first paragraph in this section referencing Product Instances with the following text.

At a high level, the Service Configuration and Activation Orchestration is responsible for the design of the end-to-end Service, including the selection and routing of the Service over the involved domains (e.g., Forwarding Domains) and the Service Component parameters, as well as the calculation of the list of technical actions (i.e., “delivery orchestration plan” or plan of tasks necessary to instantiate the Service) that must get executed for the implementation of the Service. Specifically, Service Configuration and Activation Orchestration encompasses allocation, design, and configuration of specific Services or Service Components in support of ~~Product Instances~~ **Products** to meet Customer requirements, or in response to requests from other processes to alleviate specific service capacity shortfalls, availability concerns or failure conditions. In support of Service Configuration and Activation Orchestration, LSO applies details from the Product Offering and the Customer Order to design the end-to-end Service, and identifies the Service Components composing the Service. Network and Application Domain Controllers design and configure each Service Component within their domain.

7 Changes to Section 10.2.2

Replace numbered items 1, 2, 14 and 15 in this section referencing Product and Product Instance with the following text.

1. Customer retrieves Product catalog and existing Product assets (e.g., existing service locations, existing UNIs, existing ~~Product Instances~~ Products, etc.): Customer-> Cantata -> Business Applications
2. Customer selects, specifies parameters and gets serviceability and a quote for the ~~Product~~ Product Offering: Customer -> Cantata -> Business Applications.
14. The customer is notified that the ~~Product Instance~~ is ready to use: Business Applications -> Cantata -> Customer
15. Customer performs testing and accepts the ~~Product Instance~~: Customer -> Cantata -> Business Applications
 - a) E.g., Billing capability for the product assets (can be staggered); Billing commences

8 Changes to Section 10.3.2

Replace numbered item 14 in this section referencing Product Instance with the following text.

14. SOF-sp generates a Usage Event to the Business Applications for **Product Instance**: SOF-sp -> Legato -> Business Applications

9 Changes to Section 10.4.1

Replace the first paragraph in this section referencing Product Instances with the following text.

The Customer wishes to view performance and fault information related to its ~~Product Instances~~ **Products** and associated Services. In the Service Provider domain, LSO may receive fault and performance related information about the Service, either end-to-end or per each Service Component. This information is organized to facilitate the evaluation of the overall performance and status associated with the Customer's Services and ~~Product Instances~~ **Products**. LSO gathers the information requested by the Customer and assembles it into a report. The Customer may also request that reports be generated on a scheduled or exception basis.

10 Changes to Section 10.5.1

Replace the first paragraph in this section referencing Product Instances with the following text.

Trouble Reports related with the Customer's ~~Product Instances~~ **Products** and Services may be placed by the Customer. In the Service Provider, LSO gathers and fuses trouble and fault information related to the Customer's ~~Product Instances~~ **Products** and Services and associates it to the Trouble Report. LSO would also attempt to remedy the reported trouble by reconfiguring, reassigning, and / or rerouting aspects of the Service. LSO also indicates if manual intervention is required to resolve the trouble, and tracks the status of any associated repair activities to help determine trouble resolution status. The status of trouble resolution is reported back to the Customer.

11 Changes to Section 10.7.1

Replace the first paragraph in this section referencing Product Instances with the following text.

The Service Provider gathers relevant usage measurements and usage events in order to generate and provide a bill to the Customer as shown in Figure 9. LSO collects usage measurements, traffic measurements, and service-related usage events (e.g., Customer initiated changes in service bandwidth, etc.) describing the usage of Service Components and associated resources. This information is correlated to specific Services and ~~Product Instances~~ Products. The appropriate business applications perform rating and billing based on the usage information and business rules. Where Service Components have been used beyond their SLS commitments (e.g., counting yellow traffic that provides an opportunity to upsell the customer), exception reports may be generated. Note that Partner domains may also be involved in reporting usage and generation of billing information.

12 Changes to Section 11

Replace Figure 10 with Figure 10 below and the first two bullets in this section referencing Product Instance with the following text.

Management Abstractions	Information Class Examples per Management Abstraction View	LSO RA Context
Product View	Product Catalog, Product Offering, Customer, Product, Product Spec	Business Applications
Service View	Service, Service Component, Service Spec, Service Access Point, Service Interface	Service Orchestration (Provider & Partner Domains)
Resource View Network, Application & Topology	Link, Forwarding Domain, Forwarding Construct, Logical Termination Point, VNF, Route, Connection	Infrastructure Control & Management
Element & Equipment	Fabric, Cross Connect, Network Element, Card, Facility, Server, VNFI, Port	Element Control & Management

Figure 10 - A View of Management Abstractions

- Product View:** The product domain is specific to the interaction between the Customer and the Product Offerings of a Service Provider. The **Product Instance** involves the purchasing, or procurement, of specific Product Offerings from a product catalog by a Customer, and all other commercial aspects related to the Customer's **Product Instance**, such as billing. Product Specifications define the individual product characteristics that are used to create differentiated Product Offerings. Software systems implementing Product Offering and **Product Instance** related functionality have traditionally been business support systems in the business management domain.
- Service View:** A **Product Instance** is realized as one or more Services and associated resources; thus Services are tightly bound to **Products Product Instances** and may be viewed to represent the Customer experience of the **Product Instance** that has been realized within the Service Provider's infrastructure. A Service is visible and directly usable by the Customer, but may be divided within the Service Provider's infrastructure into one or more Service Components, for instance corresponding to forwarding domains at the resource layer or to underlying access services that the Service Provider has purchased from a Partner domain. Service Components are not visible to the Customer. Software systems

implementing service-related functionality have traditionally been operational support systems in the service management domain or service management systems.

Note that in the TM Forum SID (TMF GB922 [34]), a Service is referred to as a Customer Facing Service (CFS) and a Service Component is referred to as a Resource Facing Service (RFS).

13 Changes to Section 11.1

Replace paragraphs 1 thru 5 in this section referencing Product Instance with the following text.

Customers need to be able to express their needs in order to determine which Product Offerings can support their requirements and Service Providers need to be able to match these requirements to technical specifications to realize the Product Offering. A Product Offering represents what is externally presented to the market for the market's use. It can be assembled from a reusable Product Specification which describes characteristics of the Product Offering that are made externally available, both tangible and intangible objects. A product catalog contains a list of Product Offerings for sale, with prices and illustrations, for example in book form or on the web. A **Product Instance** represents the subscription of a Product Offering by a Customer, who normally is the purchaser of the **Product Instance**. Thus, the **Product Instance** is the instantiation of a Product Offering for a given Customer.

The Product Specifications can be used by Service Providers to create differentiated Product Offerings. For example, for Carrier Ethernet these specifications may define traditional E-Line, E-LAN, and E-Tree product characteristics for EVC based services, as well as specialty E-Access and E-Transit characteristics for OVC based services. These Product Specifications will define the characteristics of UNI / ENNI service interfaces, the EVC / OVC as Connectivity Services, and the associated service access points, or endpoints of the connection.

For the most part, these product characteristics will map 1-to-1 to the service characteristics found in a Service Specification in the Service View, and, in the case of Ethernet Services, reflect the service attributes found in MEF 6.3 [11] , MEF 10.4 [13], MEF 51.1[23], and MEF 26.2 [17] technical specifications. The linkage from the Product View and the Service View is precisely through the Product Specification to the Service Specification, and from the **Product Instance** to the Service.

Table 2 and Table 3 below show an example of part of a Product Offering definition, e.g., "Super Metro Ethernet Line" being offered by Service Provider "World Telco". In this case, the Product Offering corresponds to an EPL service.

Note that the definition of the Product Offering is applicable to ALL **Product Instances** Products that are created by the Service Provider.

14 Changes to Section 11.2

Replace the first sentence in this section referencing Product Instance with the following text.

The service represents the intent of the Service Provider to deliver the features as specified in the Customer's **Product Instance**.

15 Changes to Appendix A

Replace Table 4 with Table 4 below.

LSO Management Interface Reference Point	High Level Interaction Examples (non-exhaustive)
Cantata (CUS:BUS)	<p><i>Supports Product related management interactions between the Service Provider's Business Applications and the Customer Application Coordinator.</i></p> <p>Customer Application Coordinator browses the product catalog for Product Offerings that are available for the Customer to select.</p> <p>Based on Product Offerings, Customer Application Coordinator develops, places, tracks, and changes Product Orders.</p> <p>Customer Application Coordinator requests modification of Product Instances Products.</p> <p>Customer Application Coordinator receives information about the scheduled maintenance that may impact their Product Instances Products.</p> <p>Customer Application Coordinator places and tracks trouble reports.</p> <p>Customer Application Coordinator queries and views usage and billing information.</p>

LSO Management Interface Reference Point	High Level Interaction Examples (non-exhaustive)
Allegro (CUS:SOF)	<p><i>Supports Service-related management interactions between the Customer Application Coordinator and the Service Provider’s Service Orchestration Functionality.</i></p> <p>Customer Application Coordinator controls Service by requesting changes to dynamic parameters as permitted by service policies.</p> <p>Customer Application Coordinator queries operational state of the Service.</p> <p>Customer Application Coordinator requests change to administrative state or permitted attributes of a Service.</p> <p>Customer Application Coordinator provides and views customer acceptance testing information.</p> <p>Customer Application Coordinator views Service performance and fault information.</p> <p>Customer Application Coordinator receives Service specific event notifications from the Service Provider.</p> <p>Customer Application Coordinator receives Service specific performance information from the Service Provider.</p> <p>Customer Application Coordinator request test initiation and receive test results from the Service Provider.</p>
Sonata (BUS:BUS)	<p><i>Supports Product related cross domain interactions between the Service Provider’s Business Applications and the Partner’s Business Applications.</i></p> <p>Service Provider browses the Partner’s product catalog (e.g., wholesale catalog) for Product Offerings that are available for the Service Provider to select. This may include some geographical and Service information to support availability queries of a Product Offerings at some geographical area.</p> <p>Service Provider develops (based on Product Offerings), places, tracks, and changes Product Orders with the Partner</p> <p>Service Provider requests modification of Product Instances Products.</p> <p>Service Provider receives Product Instance Product Instance performance and fault information provided by the Partner.</p> <p>Service Provider receives information from the Partner about the scheduled maintenance that may impact their Product Instances Products.</p> <p>Service Provider places and tracks trouble reports.</p> <p>Service Provider exchanges usage and billing information.</p>

LSO Management Interface Reference Point	High Level Interaction Examples (non-exhaustive)
Interlude (SOF:SOF)	<p><i>Supports control related management interactions between the Service Provider and the Partner.</i></p> <p>Service Provider controls aspects of the Service within the Partner domain (on behalf of the Customer) by requesting changes to dynamic parameters as permitted by Service policies.</p> <p>Service Provider queries operational state of the Service.</p> <p>Service Provider requests change to administrative state or permitted attributes of a Service.</p> <p>Service Provider request creation of connectivity between two Service Interfaces as permitted by established business arrangement.</p> <p>Service Provider queries the Partner for detailed information related to Services provided by the Partner to the Service Provider.</p> <p>Service Provider receives Service specific event notifications from the Partner.</p> <p>Service Provider receives Service specific performance information from the Partner.</p> <p>Service Provider request test initiation and receive test results from the Partner.</p>
Legato (BUS:SOF)	<p><i>Supports interactions between the Business Applications and the Service Orchestration Functionality.</i></p> <p>Business Applications request Service feasibility determination.</p> <p>Business Applications request reservation of resources related to a potential Service.</p> <p>Business Applications request activation of Service.</p> <p>Business Applications receive Service activation tracking status updates.</p> <p>Business Applications receive request to initiate Product Order with a Partner provider (for off net portions of the service).</p> <p>Business Applications receive usage events due to a Customer initiating dynamic activity on their Service (e.g., increase in bandwidth).</p> <p>Business Applications receive a summary of Service quality and usage information.</p> <p>Business Applications receive Service Activation Testing results.</p> <p>Business Applications receive capability information about the Service layer.</p>

LSO Management Interface Reference Point	High Level Interaction Examples (non-exhaustive)
Presto (SOF:ICM)	<p><i>Supports the management of the network infrastructure, including network and topology view related management functions.</i></p> <p>SOF requests ICM to create network connectivity or functionality associated with specific Service Components of an end-to-end Connectivity Service within the domain managed by each ICM</p> <p>SOF receives topology, connectivity and routing information from ICM</p> <p>SOF receives performance and fault information from ICM.</p> <p>SOF queries ICM for Resource Inventory (including capabilities) information.</p>
Adagio (ICM:ECM)	<p><i>Support the management of discrete network resources, including element view related management functions.</i></p> <p>ICM requests implementation of cross-connections or network functions on specific elements via the ECM functionality responsible for managing the element.</p> <p>ICM requests the change in administrative state of specific resources management by the ECM.</p> <p>ICM discovers element level configuration information from the ECM.</p> <p>ICM receives element level fault and performance information from ECM.</p>

Table 4 – Examples of High-Level Interactions per LSO Management Interface Reference Point

16 References

- [1] MEF 55.1, *Lifecycle Service Orchestration (LSO): Reference Architecture and Framework*, January 2021

Appendix D Acknowledgements

The following individuals participated in the development of this document and have requested to be included in this list.

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