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Network Functions Virtualisation (NFV) Release 3; Management and Orchestration; Report on NFV Information Model

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Foreword

This Group Report (GR) has been produced by ETSI Industry Specification Group (ISG) Network Functions Virtualisation (NFV).

Modal verbs terminology

In the present document "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document is an informative document providing an NFV Information Model consolidating information elements from the ETSI NFV IFA specifications listed in the reference clause.

2 References

2.1 Normative references

Normative references are not applicable in the present document.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ETSI GS NFV 003: "Network Functions Virtualisation (NFV); Terminology for Main Concepts in NFV".

[i.2] Papyrus Eclipse™ UML® Modeling Tool.

NOTE 1: Available at https://www.eclipse.org/papyrus/.

NOTE 2: Eclipse™ is a trademark of Eclipse Foundation, Inc.

[i.3] OMG™ Unified Modeling Language™ (UML®) specifications 2.5.0.

NOTE 1: Available at http://www.omg.org/spec/UML/.

NOTE 2: UML® is a registered trademark of the Object Management Group, Inc.

NOTE 3: OMG™ and Unified Modeling Language™ are trademarks of the Object Management Group.

[i.4] Eclipse Gendoc tool.

NOTE: Available at http://www.eclipse.org/gendoc/.

[i.5] ETSI GS NFV-IFA 005: "Network Functions Virtualisation (NFV); Management and Orchestration; Or-Vi reference point - Interface and Information Model Specification".

[i.6] ETSI GS NFV-IFA 006: "Network Functions Virtualisation (NFV); Management and Orchestration; Vi-Vnfm reference point - Interface and Information Model Specification".

[i.7] ETSI GS NFV-IFA 007: "Network Functions Virtualisation (NFV); Management and Orchestration; Or-Vnfm reference point - Interface and Information Model Specification".

[i.8] ETSI GS NFV-IFA 008: "Network Functions Virtualisation (NFV); Management and Orchestration; Ve-Vnfm reference point - Interface and Information Model Specification".

[i.9] ETSI GS NFV-IFA 011: "Network Functions Virtualisation (NFV); Management and Orchestration; VNF Descriptor and Packaging Specification".

[i.10] ETSI GS NFV-IFA 013: "Network Functions Virtualisation (NFV); Management and Orchestration; Os-Ma-Nfvo reference point - Interface and Information Model Specification".

[i.11] ETSI GS NFV-IFA 014: "Network Functions Virtualisation (NFV); Management and Orchestration; Network Service Templates Specification".

[i.12] ETSI GS NFV-IFA 030: "Network Functions Virtualisation (NFV); Management and Orchestration; Multiple Administrative Domain Aspect Interfaces Specification Network Service Templates Specification".

[i.13] ETSI GS NFV-IFA 031: "Network Functions Virtualisation (NFV); Management and Orchestration; Requirements and interfaces specification for management of NFV-MANO".

[i.14] ETSI GS NFV-IFA 032: "Network Functions Virtualisation (NFV); Management and Orchestration; Interface and Information Model Specification for Multi-Site Connectivity Services".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI GS NFV 003 [i.1] apply.

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI GS NFV 003 [i.1] apply.

4 Overview

4.1 Introduction

The NFV Information Model builds upon the information elements developed in other ETSI NFV ISG specifications and translates them into a consolidated UML® [i.3] NFV Information Model. The intention of the NFV Information Model is to provide a consolidated view on all information elements present as part of the interface specifications. The model is a tool to check consistency between information elements as well as to provide a logical relationship between information elements across different interfaces by the use of UML® associations.

The model is structured into domains and modules to differentiate between different types of information elements and their use. Whereas the Core Model provides generic information elements which are applicable to multiple interfaces, the Interface Information Model provides interface specific information elements.

NOTE: The term Core Model is used within the scope of the present document and is not related to the term Core Model used outside of the ISG.

In case of discrepancies between the present document and information elements specified in the documents in clause 4.2, the latter are considered as the reference.

The format of the model will be UML® [i.3] ,using the Papyrus Open Source format [i.2].

4.2 Relation to other ETSI NFV ISG Group Specifications

The present document is referencing information from the following NFV Group Specifications:

- NS Templates information elements, produced by ETSI GS NFV-IFA 014 [i.11].
- VNF Descriptor information elements produced by ETSI GS NFV-IFA 011 [i.9].
- Information elements produced by ETSI GS NFV-IFA 005 [i.5], ETSI GS NFV-IFA 006 [i.6], ETSI GS NFV-IFA 007 [i.7], ETSI GS NFV-IFA 008 [i.8], ETSI GS NFV-IFA 013 [i.10], ETSI GS NFV-IFA 030 [i.12], ETSI GS NFV-IFA 031 [i.13] and ETSI GS NFV-IFA 032 [i.14].

5 About the NFV Information Model

5.1 Model structure

The NFV Information Model, as shown in figure 1, is organized in an NFV Core Model and extensions, extending the NFV Core Model for specific needs.

One extension, NFV Interface Information Model, is currently defined for containing information elements specific to interfaces.

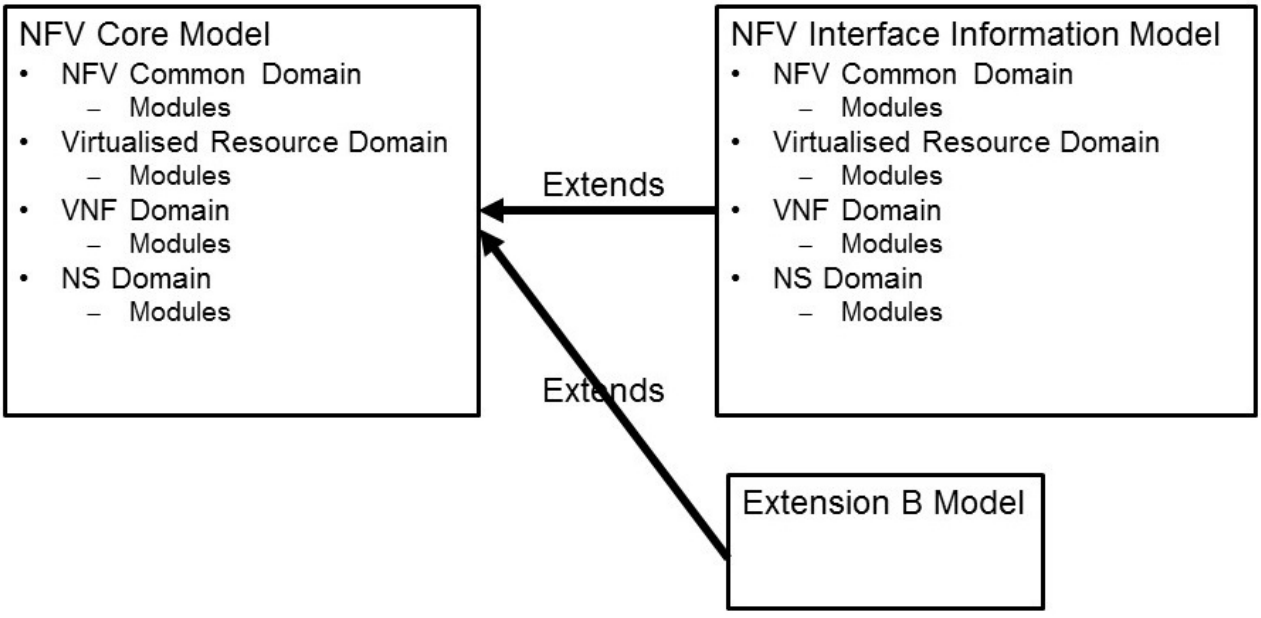

Figure 1: NFV Information Model structure

Each model is structured in Domains. Four domains are defined today:

- NFV Common Domain.
- Virtualised Resource Domain.
- VNF Domain.
- NS Domain.

Each domain is structured in modules.

5.2 Model views

5.2.1 Introduction

The NFV Information Model includes 2 types of view:

- Logical view.
- Deployment view.

5.2.2 Logical view

The logical view is concerned with the functionality that the system provides to end-users.

Most of the classes in the model belong to the logical view.

To facilitate recognition, all elements that are part of the logical view are coloured in light blue in the diagrams.

Figure 2 is showing a very basic example of a VNF logical view.

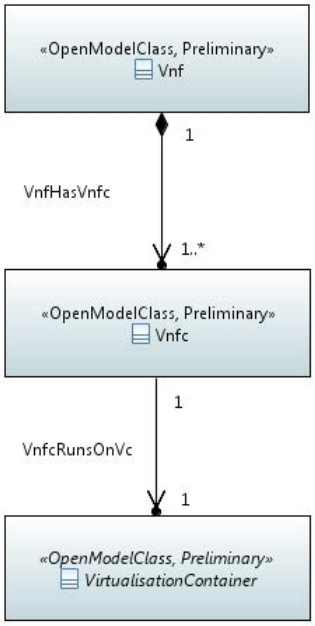

Figure 2: Basic example of a VNF logical view

5.2.3 Deployment view

The deployment view is concerned with the functionality that is needed to deploy the provided system to end-users.

All the descriptor classes are part of the deployment view.

To facilitate recognition, all elements that are part of the deployment view are coloured in yellow in the diagrams.

Figure 3 is showing a very basic example of a VNF deployment view.

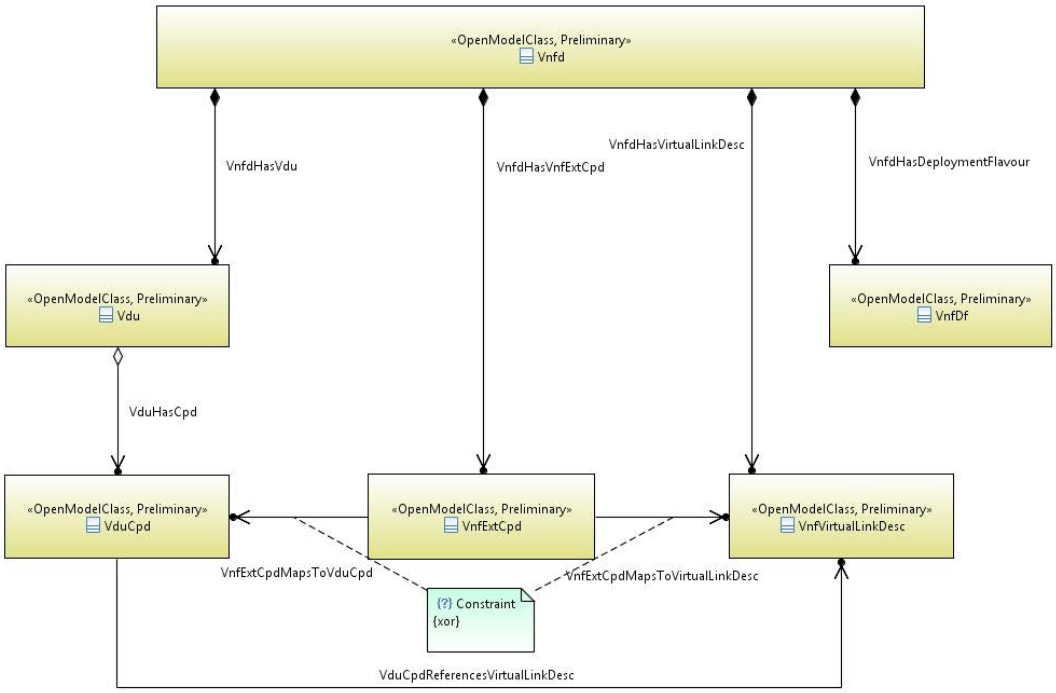

Figure 3: Basic example of a VNF deployment view

As the elements in the deployment view are used to deploy elements in the logical view, corresponding elements are related as shown in the example of a relationship between logical and deployment views in figure 4.

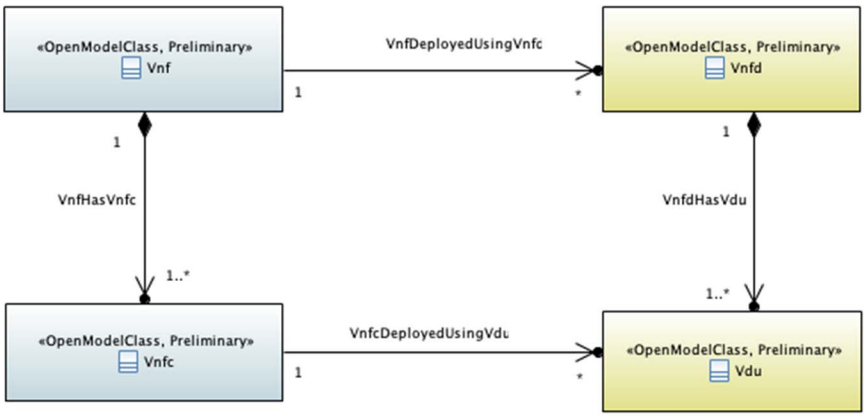

Figure 4: Example of a relationship between logical and deployment views

5.3 Model details

The model details are provided in Papyrus [i.2] format in the attached zip file (gr_nfv-ifa015v030301p0.zip) which accompanies the present document.

The Gendoc plugin [i.4] is used to generate a Microsoft® Word output of the NFV Information Model.

The model is decomposed based on the model structure presented in clause 5.1 and, for each module, the following elements are listed in order:

- Diagrams.
- Classes.

- Notifications.
- Datatypes.
- Associations.

For each element, the comments and the stereotypes are shown. For classes, notifications and datatypes, the attributes are displayed in tables. For associations, the association ends, whether the association is navigable or not, are shown in tables.

Annex A:
NFV Information Model

The NFV Information Model built using the Papyrus UML® tool [i.2] is contained in a compressed file named NfvInformationModelv331.zip contained in archive gr_nfv-ifa015v030301p0.zip which accompanies the present document.

NOTE: The NFV Information Model ed331 includes some changes addressing issues that have been fixed in the subsequent versions of the base documents. See change requests in NFVIFA(19)000877, NFVIFA(19)000878 and NFVIFA(19)000911.

Annex B:
Word format presentation of the NFV Information Model

The Microsoft® Word format presentation of the NFV Information Model is generated from the NFV UML® Information Model using the tool Gendoc available at [i.4]. The format is provided to assist the readers that do not use UML® or have no access to UML® tools.

The Microsoft® Word format presentation of the NFV Information Model is the file NfvInformationModelv331.docx contained in archive gr_nfv-ifa015v030301p0.zip which accompanies the present document.

NOTE: The NFV Information Model v331 includes some backported changes addressing issues that have been fixed in the subsequent versions of the base documents. See change requests in NFVIFA(19)000877, NFVIFA(19)000878 and NFVIFA(19)000911.

Annex C:
Known issues

C.1 Overview

This annex lists known issues identified during the alignment of the NFV Information Model with the ETSI NFV ISG specifications the Information Model is based on. The known issues are potential inconsistencies between the published NFV V331 specifications and the present document, and are to be discussed/addressed in future versions of the specifications and information model. The items are organized by reference document and clause. Items for which a resolution has been agreed upon and implemented in subsequent editions of the specifications, including backported changes in the Information Model, are noted as such (see also notes in Annex A and Annex B).

C.2 Reference Document: ETSI GS NFV-IFA 005 V3.3.1

C.2.1 Clause 8.3.2 InformationChangeNotification

- resourceTypeId to be associated with corresponding class?

C.2.2 Clause 8.3.3.2 VirtualComputeResourceInformation information element

- description in ETSI GS NFV-IFA 005 [i.5] may need to be aligned with other *ResourceInformation information elements as is the case in the IM
- virtualCPU (ETSI GS NFV-IFA 005 [i.5]) vs virtualCpu (IM, ETSI GS NFV-IFA 006 [i.6])
- unify the computeResourceTypeId into resourceTypeId (also for other Virtual*ResourceInformation)?

C.2.3 Clause 8.4.2.2 VirtualComputeFlavour information element

- virtualComputeDesc attribute from association has no description (see LinkingLogicalAndDeploymentViews_VNF diagram, other blue classes from that diagram are not described in base documents)

C.2.4 Clause 8.4.2.3 VirtualCpuData information element

- compare with the same element in ETSI GS NFV-IFA 011 [i.9] does it make sense to share the same name? (ETSI GS NFV-IFA 011 [i.9] seems to describe a different perspective, corresponding element is in different package, matched by description)

C.2.5 Clause 8.4.2.4 VirtualCpuPinningData information element

- identically named information element in ETSI GS NFV-IFA 011 [i.9] differs slightly in attributes and cardinalities, both information elements may be merged into a single element or one of them may be renamed

C.2.6 Clause 8.4.5.2 VirtualNetwork information element

- type for networkQoS contains a typo in GS, corrected in the IM

C.2.7 Clause 8.4.8.2 AffinityOrAntiAffinityConstraint information element

- contains incorrect table header

C.2.8 Clause 8.4.8.3 AffinityOrAntiAffinityResourceList information element

- contains incorrect table header

C.2.9 Clause 8.5.2 ObjectSelection information element

- differences in cardinalities due to inconsistencies with ETSI GS NFV-IFA 007 [i.7], ETSI GS NFV-IFA 008 [i.8], ETSI GS NFV-IFA 013 [i.10], ETSI GS NFV-IFA 032 [i.14]

C.2.10 Clause 8.5.4 Threshold information element

- objectSelector has cardinality 1..N in ETSI GS NFV-IFA 005 [i.5] and IM, compared to cardinality 1 in ETSI GS NFV-IFA 006 [i.6], ETSI GS NFV-IFA 007 [i.7], ETSI GS NFV-IFA 008 [i.8], ETSI GS NFV-IFA 013 [i.10], ETSI GS NFV-IFA 032 [i.14]

C.2.11 Clause 8.5.7 PerformanceValueEntry information element

- measurementContext is defined of type Context but there is no such type
- ETSI GS NFV-IFA 006 [i.6] version contains incorrect table heading

C.2.12 Clause 8.5.9 ThresholdCrossedNotification

- is thresholdId a reference (also for ETSI GS NFV-IFA 006 [i.6])?

C.2.13 Clause 8.6.3 AlarmClearedNotification

- is alarmId a reference (also for ETSI GS NFV-IFA 006 [i.6])?

C.2.14 Clause 8.6.4 Alarm information element

- is state the same as ackState?
- eventType has cardinality 0..1 in ETSI GS NFV-IFA 005 [i.5] and 1 in IM (different except for ETSI GS NFV-IFA 006 [i.6])
- faultType has cardinality 1 in ETSI GS NFV-IFA 005 [i.5] and 0..1 in IM (different except for ETSI GS NFV-IFA 006 [i.6])

C.2.15 Clause 8.7.2 TimePeriodInformation information element

- changed stopTime to endTime -> backported from NFVIFA(19)000878

C.2.16 Clause 8.7.5 CapacityThreshold information element

- contains incorrect table header -> resolved in NFVIFA(19)000877
- attributes are inconsistently specified -> separate element? pending clarification (see also ETSI GS NFV-IFA 013 [i.10] and ETSI GS NFV-IFA 032 [i.14], IM follows ETSI GS NFV-IFA 032 [i.14] and ETSI GS NFV-IFA 013 [i.10])

C.2.17 Clause 8.8.2 ReservedVirtualCompute information element

- deviation in cardinalities for startTime (0..1 in ETSI GS NFV-IFA 005 [i.5] and IM vs 1 in ETSI GS NFV-IFA 006 [i.6])

C.2.18 Clause 8.8.4.2 ReservedVirtualNetwork information element

- added publicIpAddresses attribute/association, note: not propagated to ETSI GS NFV-IFA 006 [i.6] -> conflict which is correct (currently ETSI GS NFV-IFA 005 [i.5])
- marked attribute publicIps as obsolete, note still used in ETSI GS NFV-IFA 006 [i.6]-> changed multiplicity as well

C.2.19 Clause 8.8.4.8 PublicIpAddressesReservationData information element

- attribute type contains a typo (networkId), corrected in the IM

C.2.20 Clause 8.9 Nfp information element

- incorrect table header -> resolved in NFVIFA(19)000878

C.2.21 Clause 8.10.2 ResourceZone information element

- PassedByReference stereotype may need to be added for nfviPopId (not present in ETSI GS NFV-IFA 005 [i.5], removed from the IM, indicated by conventions)

C.2.22 Clause 8.10.3 NfviPop information element

- attribute description for networkConnectivityEndpoint contains inconsistent dashing (n-/m- dash? vs "-"), description in IM contains only "-"

C.3 Reference Document: ETSI GS NFV-IFA 006 V3.3.1

C.3.1 Clause 8.3.5 VirtualNetworkResourceInformation information element

- attribute networkQos in ETSI GS NFV-IFA 006 [i.6] vs networkQoS (IM, ETSI GS NFV-IFA 005 [i.5])

C.3.2 Clause 8.4.2.4 VirtualCpuPinningData information element format

- changed cardinality of attribute, compatibility issues with ETSI GS NFV-IFA 011 [i.9] -> separate element in a different module, matched by description

C.3.3 Clause 8.4.4.2 VirtualNetworkData information element format

- attribute networkQos vs networkQoS (no change, see ETSI GS NFV-IFA 005 [i.5])

C.3.4 Clause 8.4.5.2 VirtualNetwork information element

- see ETSI GS NFV-IFA 005 [i.5], NetworkQoS type typo

C.3.5 Clause 8.4.5.3 NetworkSubnet information element

- backported from NFVIFA(19)000877 -> **removed attribute "rdma"**

C.3.6 Clause 8.4.6.3 VirtualStorageData information element

- attribute rdmaEnabled is named differently (rdma) in backported change from NFVIFA(19)000878 for ETSI GS NFV-IFA 005 [i.5], pending name alignment

C.3.7 Clause 8.4.9 VirtualisedResourceChangeNotification

- attribute changedResourceData (IM, ETSI GS NFV-IFA 005 [i.5]) vs changeResourceData (ETSI GS NFV-IFA 006 [i.6]), pending name alignment

C.3.8 Clause 8.5.7 PerformanceValueEntry information element

- the type Context does not exist

C.3.9 Clause 8.5.9 ThresholdCrossedNotification

- is thresholdId a reference?

C.3.10 Clause 8.6.3 AlarmClearedNotification

- is alarmId a reference?

C.3.11 Clause 8.6.4 Alarm information element

- is state the same as ackState?
- state type to be changed to Enum?
- eventType cardinality (different except for ETSI GS NFV-IFA 006 [i.6])
- faultType cardinality (different except for ETSI GS NFV-IFA 006 [i.6])

C.3.12 Clause 8.7.2 ReservedVirtualCompute information element

- note deviation in multiplicities for startTime (vs ETSI GS NFV-IFA 005 [i.5])

C.3.13 Clause 8.7.3.2 ReservedComputePool information element

- numCpuCores type Integer (ETSI GS NFV-IFA 005 [i.5]) vs Number (ETSI GS NFV-IFA 006 [i.6])
- numVcInstances type Integer (ETSI GS NFV-IFA 005 [i.5]) vs Number (ETSI GS NFV-IFA 006 [i.6])
- computeAttributes cardinality 1 (ETSI GS NFV-IFA 006 [i.6]) vs 0..1 (ETSI GS NFV-IFA 005 [i.5])

C.3.14 Clause 8.7.4.2 ReservedVirtualNetwork information element

- networkAttributes cardinality
- attribute publicIps (ETSI GS NFV-IFA 005 [i.5]) is renamed to/superseded by publicIpAddresses (IM, ETSI GS NFV-IFA 006 [i.6]), pending name alignment, cardinality and type are also mismatching

C.3.15 Clause 8.7.4.3 ReservedVirtualNetworkAttributes information element

- attribute name typo Bandwidth vs bandwidth
- attribute name typo Metadata vs metadata
- segmentType cardinality?

C.3.16 Clause 8.7.6.2 ReservedVirtualStorage information element

- startTime cardinality?

C.3.17 Clause 8.7.6.3 ReservedStoragePool information element

- numSnapshots type Integer (ETSI GS NFV-IFA 005 [i.5]) vs Number (ETSI GS NFV-IFA 006 [i.6])
- numVolumes type Integer (ETSI GS NFV-IFA 005 [i.5]) vs Number (ETSI GS NFV-IFA 006 [i.6])

C.3.18 Clause 8.8.3.2 VirtualNetworkQuota information element

- attribute name typo numSubnets vs numSubnet

C.4 Reference Document: ETSI GS NFV-IFA 007 V3.3.1

C.4.1 Clause 8.2.7 SoftwareImageInformation information element

*"NOTE: The definition below is aligned with the definition of the SoftwareImageInformation information element in ETSI GS NFV-IFA 005 [*i.5*]".* (This note is not present in other instances, and it does not reflect reality.)

- attribute softwareImageId is not renamed id as in ETSI GS NFV-IFA 005 [i.5] and ETSI GS NFV-IFA 006 [i.6].
- attributes updatedAt and status are not present in ETSI GS NFV-IFA 007 [i.7]
- userMetadata is of qualifier "M" (also in ETSI GS NFV-IFA 013 [i.10]) whereas in ETSI GS NFV-IFA 005 [i.5] and ETSI GS NFV-IFA 006 [i.6] it is "O"

C.4.2 Clause 8.5.2 VnfInfo information element

- is vnfdId a reference or not?
- is onboardedVnfPkgInfoId a reference or not?
- attribute descriptions may need to be updated still

C.4.3 Clause 8.5.3 InstantiatedVnfInfo information element

- attribute vnfcInfo not present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 013 [i.10] but present in ETSI GS NFV-IFA 008 [i.8] (added missing description from ETSI GS NFV-IFA 008 [i.8])

C.4.4 Clause 8.5.10 ExtManagedVirtualLinkInfo information element

- added attribute extManagedMultisiteVirtualLinkId (not present in ETSI GS NFV-IFA 008 [i.8], present in ETSI GS NFV-IFA 013 [i.10])

C.4.5 Clause 8.5.12 VnfExtCpInfo information element

- renamed extLinkPort to extLinkPortId, added PassedbyReference stereotype, may need association instead

C.4.6 Clause 8.5.14 VnfcCpInfo information element

- added PassedbyReference stereotype to vnfLinkPortId, may need association instead

C.4.7 Clause 8.6.3 AffectedVnfc information element

- vnfdId attribute is missing in ETSI GS NFV-IFA 007 [i.7] (present in ETSI GS NFV-IFA 008 [i.8], IM)
- vnfcInstanceId in ETSI GS NFV-IFA 008 [i.8] contains a typo in the type description
- affectedVnfcCpInstances contains a requirement not present in ETSI GS NFV-IFA 008 [i.8]

C.4.8 Clause 8.6.4 AffectedVirtualLink information element

- vnfdId attribute is missing in ETSI GS NFV-IFA 007 [i.7] (present in ETSI GS NFV-IFA 008 [i.8], IM, not present in ETSI GS NFV-IFA 013 [i.10] - different element?)
- virtualLinkInstanceId type contains a typo -> **Vnf**VirtualLinkResourceInfo?

C.4.9 Clause 8.6.5 AffectedVirtualStorage information element

- vnfdId attribute is missing in ETSI GS NFV-IFA 007 [i.7] (present in ETSI GS NFV-IFA 008 [i.8], IM, not present in ETSI GS NFV-IFA 013 [i.10] - different element?)

C.4.10 Clause 8.7.4 Threshold information element

- objectSelector has cardinality 1..N in ETSI GS NFV-IFA 005 [i.5] and IM, compared to cardinality 1 in ETSI GS NFV-IFA 006 [i.6], ETSI GS NFV-IFA 007 [i.7], ETSI GS NFV-IFA 008 [i.8], ETSI GS NFV-IFA 013 [i.10], ETSI GS NFV-IFA 032 [i.14]

C.4.11 Clause 8.7.5 PerformanceReport information element

- mismatching attribute names (see other related remarks) -> backported from NFVIFA(19)000878 -> aligned to performanceReport, added note (performanceReportEntry in ETSI GS NFV-IFA 005 [i.5], ETSI GS NFV-IFA 006 [i.6]) for ed331

C.4.12 Clause 8.8.4 Alarm information element

- multiplicity and qualifier differences for rootCauseFaultyResource
- vnfcId present in ETSI GS NFV-IFA 008 [i.8] and IM but not in ETSI GS NFV-IFA 007 [i.7]

C.4.13 Clause 8.12.2 ExtVirtualLinkData information element

- vmConnectionId is replaced by vimId in ETSI GS NFV-IFA 013 [i.10] (not a reference)

C.4.14 Clause 8.12.4 ExtManagedVirtualLinkData information element

- attribute vnfLinkPort not present in ETSI GS NFV-IFA 008 [i.8], present in ETSI GS NFV-IFA 013 [i.10], IM
- attribute extManagedMultisiteVirtualLinkId not present in ETSI GS NFV-IFA 008 [i.8], present in ETSI GS NFV-IFA 013 [i.10], IM

C.5 Reference Document: ETSI GS NFV-IFA 008 V3.3.1

C.5.1 Clause 9.2.5 CpAddress information element

- address is not specified in ETSI GS NFV-IFA 008 [i.8] compared to the IM

C.5.2 Clause 9.3.4 Alarm information element

- cardinality differs for rootCauseFaultyResource (ETSI GS NFV-IFA 013 [i.10] vs the rest and the IM)

C.5.3 Clause 9.4.2 VnfInfo information element

- passedByReference for vnfdId may need to be added
- passedByReference for onboardedVnfPkgInfoId may need to be added
- vimConnectionInfo not present in ETSI GS NFV-IFA 008 [i.8] but present in IM, ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 013 [i.10] -> is that intentional?

C.5.4 Clause 9.4.4 VnfcResourceInfo information element

- cardinality differs for vnfcCpInfo (ETSI GS NFV-IFA 008 [i.8] vs IM, ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 013 [i.10])

C.5.5 Clause 9.5.4 AffectedVirtualLink information element

- virtualLinkInstanceId type contains a typo -> VnfVirtualLinkResourceInfo assumed as the correct type

C.5.6 Clause 9.7.4 Threshold information element

- objectSelector has cardinality 1..N in ETSI GS NFV-IFA 005 [i.5] and IM, compared to cardinality 1 in ETSI GS NFV-IFA 006 [i.6], ETSI GS NFV-IFA 007 [i.7], ETSI GS NFV-IFA 008 [i.8], ETSI GS NFV-IFA 013 [i.10], ETSI GS NFV-IFA 032 [i.14]

C.5.7 Clause 9.7.5 PerformanceReport information element

- mismatching attribute names (see other related remarks) -> backported from NFVIFA(19)000878 -> aligned to performanceReport, added note (performanceReportEntry in ETSI GS NFV-IFA 005 [i.5], ETSI GS NFV-IFA 006 [i.6]) for ed331

C.5.8 Clause 9.8.2 VnfExtCpInfo information element

- typo in type description for associatedVnfVirtualLinkId, corrected in the IM

C.5.9 Clause 9.10.4 VnfcSnapshotImageInfo information element

- vnfcInstanceId not present in ETSI GS NFV-IFA 008 [i.8] but present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 013 [i.10] and the IM

C.6 Reference Document: ETSI GS NFV-IFA 011 V3.3.1

C.6.1 Clause 7.1.3.2 VnfExtCpd information element

- added vipCpd (via association) -> back reference? (see also VipCpd)

C.6.2 Clause 7.1.5.2 VnfLcmOperationsConfiguration information element

- not shown on any diagram in the IM

C.6.3 Clause 7.1.5.4 ScaleVnfOpConfig information element

- not shown on any diagram in the IM

C.6.4 Clause 7.1.6.3 Cpd information element

- is securityGroupRuleId a reference or not (it is currently a modelled as DataType)?
- clause 7.1.6.4 VduCpd information element
- is order of type PositiveInteger (IM) or Integer (ETSI GS NFV-IFA 011 [i.9])?

C.6.5 Clause 7.1.6.6 VirtualNetworkInterfaceRequirements information element

- attribute nicIoRequirements contains typo in type description, corrected in the IM

C.6.6 Clause 7.1.6.9 SecurityGroupRule information element

- enum types are in all caps compared to the IM

C.6.7 Clause 7.1.7.2 VnfVirtualLinkDesc information element

- refer to inherited attributes for VirtualLinkDesc?

C.6.8 Clause 7.1.8.5 VirtualLinkDescFlavour information element

- is qos of type QoS or VnfQoS?

C.6.9 Clause 7.1.8.9 VduLevel information element

- typo in numberOfInstances, corrected in the IM

C.6.10 Clause 7.1.8.14 L2ProtocolData information element

- not shown anywhere in the IM

C.6.11 Clause 7.1.11.3 MonitoringParameter information element

- id is named monitoringParameterId in ETSI GS NFV-IFA 014 [i.11]

C.6.12 Clause 7.1.12 VnfConfigurableProperties information element

- not shown anywhere in the IM

C.6.13 Clause 7.1.15.2 VnfPackageChangeInfo information element

- multiplicity for lcmScriptId not defined

C.6.14 Clause 7.1.17.2 VipCpd information element

- type description for vnfExtCpd seems incorrect (Reference to VnfExtCp**d**?)

C.7 Reference Document: ETSI GS NFV-IFA 013 V3.3.1

C.7.1 Clause 8.3.2.5 AffectedVirtualLink information element

- vlProfileId vs virtualLinkProfileId
- type for vlProfileId/virtualLinkProfileId is incorrect (VlProfile vs VirtualLinkProfile), corrected in the IM

C.7.2 Clause 8.3.3.3 VnfInfo information element

- metadata has conflicting multiplicities in ETSI GS NFV-IFA 013 [i.10] compared to the IM
- attribute vimConnectionInfo not present in ETSI GS NFV-IFA 013 [i.10] and ETSI GS NFV-IFA 008 [i.8] (vs ETSI GS NFV-IFA 007 [i.7] and the IM)
- is vnfdId a reference or not?
- is onboardedVnfPkgInfoId a reference or not?

C.7.3 Clause 8.3.3.4 InstantiatedVnfInfo information element

- attribute vnfcInfo not present in ETSI GS NFV-IFA 013 [i.10] (present in ETSI GS NFV-IFA 008 [i.8] and the IM)
- attribute vimId (ETSI GS NFV-IFA 013 [i.10], IM) is not present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8]

C.7.4 Clause 8.3.3.5 VnfcResourceInfo information element

- storageResourceId (ETSI GS NFV-IFA 013 [i.10], IM) is named storageResource in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8]
- multiplicities for vnfcCpInfo mismatch with ETSI GS NFV-IFA 008 [i.8]

C.7.5 Clause 8.3.3.8 ResourceHandle information element

- attribute vimId (ETSI GS NFV-IFA 013 [i.10], IM) is not present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8]
- attribute vimConnectionId not present in ETSI GS NFV-IFA 013 [i.10] (present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8] and the IM)

C.7.6 Clause 8.3.3.19 ExtManagedVirtualLinkInfo information element

- attribute extManagedMultisiteVirtualLinkId (ETSI GS NFV-IFA 013 [i.10], IM) not present in ETSI GS NFV-IFA 008 [i.8], present in ETSI GS NFV-IFA 007 [i.7]

C.7.7 Clause 8.3.3.27 VnfSnapshotInfo information element

- multiplicity mismatch for createdAt
- attribute vnfd not present in ETSI GS NFV-IFA 013 [i.10] (present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8] and the IM)
- attribute vnfInfo not present in ETSI GS NFV-IFA 013 [i.10] (present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8] and the IM)

C.7.8 Clause 8.3.3.28 VnfcSnapshotInfo information element

- createdAt multiplicity mismatch with the IM
- attribute vnfcInfo not present in ETSI GS NFV-IFA 013 [i.10] (present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8] and the IM)

C.7.9 Clause 8.3.4.13 ExtVirtualLinkData information element

- attribute vimId (ETSI GS NFV-IFA 013 [i.10], IM) is not present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8]
- attribute vimConnectionId not present in ETSI GS NFV-IFA 013 [i.10] (present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8] and the IM)

C.7.10 Clause 8.3.4.26 AffinityOrAntiAffinityRule information element

- affinityOrAntiAffi**i**nity contains a typo in ETSI GS NFV-IFA 013 [i.10], corrected in the IM

C.7.11 Clause 8.3.4.28 ExtManagedVirtualLinkData information element

- attribute vimId (ETSI GS NFV-IFA 013 [i.10], IM) is not present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8]
- attribute vimConnectionId not present in ETSI GS NFV-IFA 013 [i.10] (present in ETSI GS NFV-IFA 007 [i.7] and ETSI GS NFV-IFA 008 [i.8] and the IM)

C.7.12 Clause 8.3.5 NsLcmCapacityShortageNotification

- Status - name needs to be changed to start with "s" in ETSI GS NFV-IFA 013 [i.10], corrected in the IM

C.7.13 Clause 8.5.4 Alarm information element

- faultType multiplicity mismatch with the IM

C.7.14 Clause 8.6.2 VnfPkgInfo information element

- typo in **V**nfPkgInfoId (ETSI GS NFV-IFA 013 [i.10]) corrected in the IM

C.7.15 Clause 8.6.5 SoftwareImageInformation information element

- updatedAt not present in ETSI GS NFV-IFA 013 [i.10] compared to the IM
- status not present in ETSI GS NFV-IFA 013 [i.10] compared to the IM
- userMetadata has a mismatching qualifier compared to the IM

C.7.16 Clause 8.7.3 CapacityThreshold information element

- objectInstanceId is not present in ETSI GS NFV-IFA 013 [i.10] compared to the IM

C.8 Reference Document: ETSI GS NFV-IFA 014 V3.3.1

C.8.1 Clause 6.2.9 LifeCycleManagementScript information element

- actual IM element is NsLifeCycleManagementScript -> to be renamed in IM (there are several overloaded elements already) or in ETSI GS NFV-IFA 014 [i.11]

C.8.2 Clause 6.3.3 VnfProfile information element

- mismatching type for affinityOrAntiAffinityGroupId

C.8.3 Clause 6.3.4 VirtualLinkProfile information element

- flavourId type contains a typo **VI**rtualLinkDf

C.8.4 Clause 6.3.5 AffinityOrAntiAffinityGroup information element

- type vs affinityOrAntiAffi**i**nity

C.8.5 Clause 6.4.2 Vnffgd information element

- missing type for virtualLinkProfileId (does not exist)

C.8.6 Clause 6.4.3 Nfpd information element

- nfpPositionDescId (ETSI GS NFV-IFA 013 [i.10]) vs nfpPositionDesc (IM)

C.8.7 Clause 6.4.8 CpdInConstituentElement information element

- updated type for constituentCpdId (incomplete?)

C.8.8 Clause 6.6.2 Pnfd information element

- renamed pnfExtCpd (ETSI GS NFV-IFA 014 [i.11]) vs pnfExtCp (IM)

C.9 Reference Document: ETSI GS NFV-IFA 031 V3.3.1

C.9.1 Clause 7.2.3 ManoEntityInfo information element

- manoMonitoringConfigParameter multiplicity contains a typo "..."

C.9.2 Clause 7.4.2 StateChangeNotification

- manoEntityInterfaceId refers to incorrect type -> backported from NFVIFA(19)000911

C.9.3 Clause 7.6.2 LogReportAvailabilityNotification information element

- loggingJobId is a reference -> backported from NFVIFA(19)000911

C.10 Reference Document: ETSI GS NFV-IFA 032 V3.3.1

C.10.1 Clause 8.3.6 CapacityChangeNotification

- capacityValueEntry type contains a typo CapacityValuesEntry

C.10.2 Clause 7.4.2 StateChangeNotification

- manoEntityInterfaceId refers to incorrect type -> backported from NFVIFA(19)000911

History

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