



Welcome to the World of Standards



ETSI NFV RELEASE 2 RESULTS & RELEASE 3 WORK PROGRAM OVERVIEW

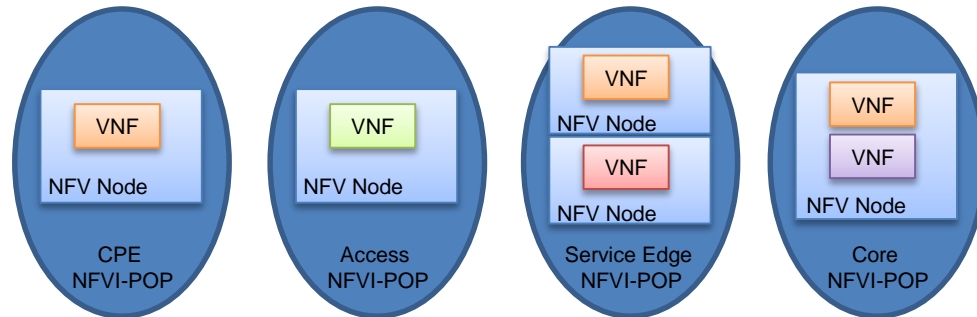
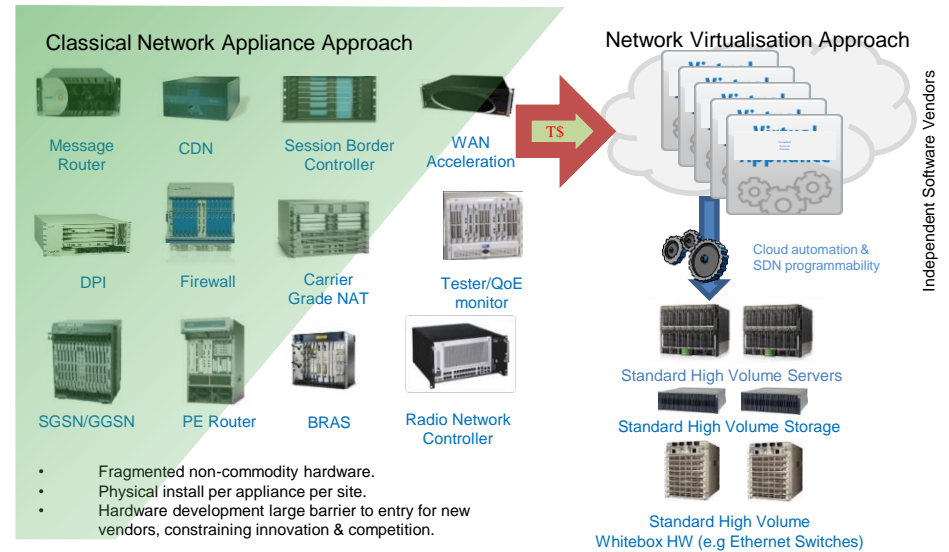
Thinh Nguyenphu, ETSI NFV SOL WG Vice-Chair, Nokia

Introduction - Background



🌐 **NFV Vision:** An open ecosystem for NFV enables rapid service innovation for Network Operators and Service Providers. Innovation in end-to-end services is enabled by software-based deployment and operationalization of virtualized network function (and network services) on independently deployed and operated NFV infrastructure platforms.

🌐 **Pro-active coordinate** with other industry bodies (SDOs and Open Source) to map their domain specific technologies into NFV Framework (e.g. as VNFs)



Operator-led Industry
Specification Group (ISG):

Operators: 37

Companies: 290+

Scope:

- Develop NFV ISG role as a place for industry collaboration.
- Foster interoperable implementations rather than necessarily creating new standards activity, by developing requirements specifications and informative reports

Normative (Specifications)

Management and orchestration functional requirements
Reference points and interfaces of NFV-MANO
VNF packaging
NS descriptors
Acceleration technologies
Hypervisor domain

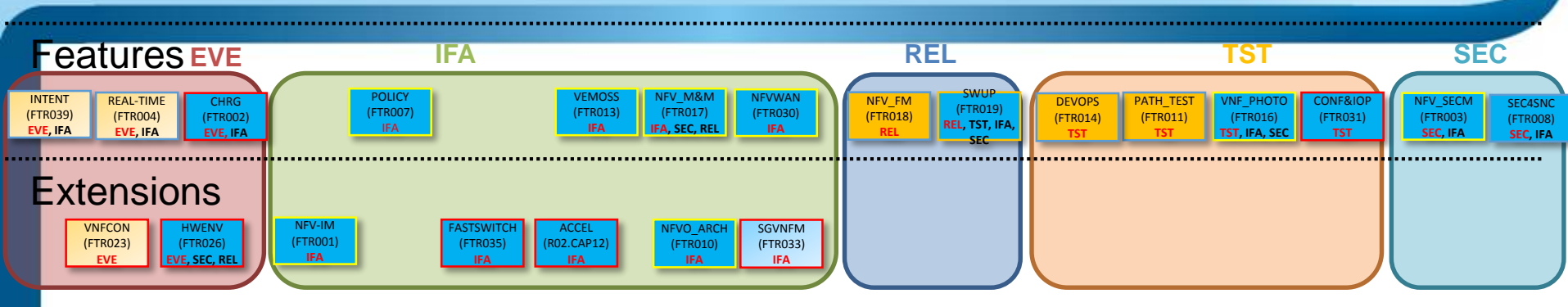
Informative (Reports, Guidelines...)

Technology inter-working use cases
SDN
NFVI-Node architecture guidelines
Other virtualization technologies
NFV architectural options
Trust, security monitoring, privacy and regulation
Reliability and assurance
Testing

- All ETSI NFV normative deliverables will be grouped into releases
 - A release is defined as “a set of deliverables that specify a well-defined, stable and internally consistent set of functions”
 - The set of original framework documents is identified as *Release 1*
 - Two expected during the current NFV ISG term
- Informative deliverables are considered by default release-independent
 - They can be associated to a release in case there exists a direct link to a normative specification
 - They should be used as input for further normative work items
 - Announced on a regular cadence

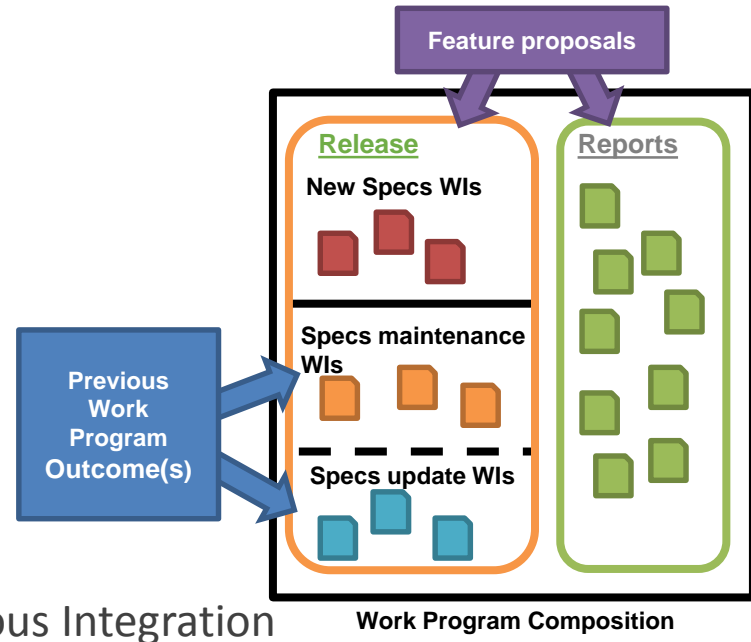
- Release 2 Definition comprised originally 13 normative specifications + 3 additional data & protocol specifications.
- Hypervisor requirements (EVE001)
- MANO functional requirements (IFA010)
 - Functional requirements for the three MANO blocks: NFVO, VNFM and VIM
 - General guidelines and requirements for NFV MANO interface design
- Acceleration specifications (IFA002, IFA003, IFA004)
 - VNF interfaces to acceleration mechanisms
 - vSwitch benchmarking and acceleration
 - Acceleration management aspects
- VIM, VNFM and NFVO related reference points (IFA005, IFA006, IFA007, IFA008, IFA0012, IFA013, SOL002, SOL003)
 - Interface, information & data model, protocol
 - Requirements, message flows and related information elements of the interfaces exposed by the VIM, VNFM and NFVO
- VNF Package, VNFD and NSD (IFA011, IFA014, SOL001)

Release 3 Features and Work Program



Extensions



- NfV Information Modeling
- Charging, Billing, Accounting
- Policy Management
- End-to-end Management
- Service and Network Service Orchestration
- Management and Connectivity for Multi-Site Services
- VNF Lifecycle Management
- Acceleration
- Security Management



- Continuous Integration
- Testing
- Transition into NFV and Integration

- The NFV PoC Framework has still a major role to play
 - For experimentation with new concepts and less mature areas in NFV
 - It needs a new push from the ISG NFV (creation of new Hot Topics, promotion, etc...)
- NFV Plugtests will build on NFV PoC Framework key achievements
 - Consistent testing and feedback to the ISG
 - Assess quality and relevance of the NFV Specs
 - Demonstrate the alignment of NFV implementations and NFV Specs
 - Develop relevant NFV test specifications for interoperability
- Release 2 specification maintenance (bug fixes)

- ETSI is organising a first NFV Plugtest
 - Hosted by 5TONIC in Madrid, Spain
 - 23 January – 3 February 2017
 - Preceded by a remote integration phase
- Main goal: Validate ETSI NFV Release 2 capabilities and Information Model in a number of NFV end to end configurations with components from different providers.
- NFV capabilities in scope include:
 - VNF Package, SW Image and NSD Management,
 - VNF & NS Life Cycle Management,
 - VNF & NS Fault & Performance Management.
- Free and open to any organisation participating to the test sessions with at least one NFV component : VNF, MANO, NFVI&VIM
 - ETSI OSM and OPNFV are confirmed as supporting Open Source projects
- More info: www.etsi.org/nfvplugtest

-  NFV is a technology-enabler which is relevant to a large number of use cases, and consequently, to different stakeholders and organizations
 - Consuming upstream technologies
 - Enabling an ecosystem for other technologies to make use of it
-  The NFV ISG has been seeking for a harmonization of the information models applicable to NFV
 - A workshop was organized to align these information models
 - Wide participation: 3GPP, ATIS, BBF, DMTF, ETSI NFV, IETF, ITU-T, MMF, OASIS/TOSCA, OCC, ODL, ONF, OPNFV, TM Forum

- NFV Release 2 defines a coherent set of normative NFV Specifications in the areas of MANO and Hardware Acceleration
- Additional informative reports on NFVI node specifications and NFVI metrics are provided as well (i.e. compute, networking, storage metrics)
- NFV Release 3 features are defined matching market demand and work on associated work items will start at NFV #14 (May 2016)
- NFV Release 2 will include Stage 3 and Test Specifications, leveraging lessons learnt with NFV PoCs and NFV Plugtests
- ISG NFV launches NFV Plugtest to drive functional interop tests. The test plan can be used as input to the NFV IOP Test Specifications
- Pro-active coordination with other organizations involved in the NFV landscape is crucial to accelerate adoption of NFV.



- Reminder: Next webinar coming soon
- NFV Interfaces and Architecture Overview
- 8 September 2016, 10am EDT, 14.00 UTC, 16.00 CEST
- Speaker: Dr. Raquel Morera, chair of the IFA Working Group in ETSI NFV
- Register now at:
 - <http://www.etsi.org/news-events/events/1113-2016-09-webinar-etsi-nfv-interfaces-and-architecture-overview>
 - Or <https://www.brighttalk.com/webcast/12761/212403>





More information:

NFV Technology Page (information)

<http://www.etsi.org/nfv>

NFV Portal (working area)

<http://portal.etsi.org/nfv>

NFV Proofs of Concept (information)

<http://www.etsi.org/nfv-poc>

NFV Plugtest (information & registration)

<http://www.etsi.org/nfvplugtest>

Open Area:

Drafts <http://docbox.etsi.org/ISG/NFV/Open/Drafts/>

Issue tracker http://nfvwiki.etsi.org/index.php?title=NFV_Issue_Tracker

ANY
QUESTIONS
?



ADDITIONAL SLIDES

Published work

WI (version)	Description
NFV 001 (v1.1.1)	NFV Use Cases
NFV 002 (v1.2.1)	NFV Architectural Framework
NFV 002 (v1.1.1)	NFV Architectural Framework
NFV 003 (v1.1.1)	Terminology for Main Concepts in NFV
NFV 003 (v1.2.1)	Terminology for Main Concepts in NFV
NFV 004 (v1.1.1)	NFV Virtualisation Requirements
NFV-EVE 003 (v1.1.1)	NFVI Node Arch report
NFV-EVE 004 (v1.1.1)	Virtualisation technologies Report
NFV-EVE 005 (v1.1.1)	SDN usage in NFV Report
NFV-IFA 001 (v1.1.1)	Acceleration - UCs report
NFV-IFA 002 (v2.1.1)	Acceleration - VNF Interface Spec
NFV-IFA 003 (v2.1.1)	Acceleration - Switching Aspects Spec
NFV-IFA 004 (v2.1.1)	Acceleration - Mgmt aspects Spec
NFV-IFA 005 (v2.1.1)	Or-Vi ref point Spec
NFV-IFA 006 (v2.1.1)	Vi-Vnfm ref point Spec
NFV-IFA 009 (v1.1.1)	MANO architectural options report
NFV-IFA 010 (v2.1.1)	MANO Functional Rqmts Spec
NFV-INF 001 (v1.1.1)	Infrastructure Overview
NFV-INF 003 (v1.1.1)	Infrastructure Compute Domain
NFV-INF 004 (v1.1.1)	Infrastructure Hypervisor Domain
NFV-INF 005 (v1.1.1)	Infrastructure Network Domain
NFV-INF 007 (v1.1.1)	Meth. to desc. Interfaces and Abstractions
NFV-INF 010 (v1.1.1)	NFV Service Quality Metrics
NFV-MAN 001 (v1.1.1)	Management and Orchestration

WI (version)	Description
NFV-PER 001 (v1.1.1)	NFV Performance & Portability Best Practises
NFV-PER 002 (v1.1.1)	NFV PoC Framework
NFV-PER 002 (v1.1.2)	NFV PoC Framework revision
NFV-REL 001 (v1.1.1)	Resiliency Requirements
NFV-REL 002 (v1.1.1)	Scalable Arch for Reliability Report
NFV-REL 003 (v1.1.1)	E2E reliability models report
NFV-REL 003 (v1.1.2)	E2E reliability models report
NFV-REL 004 (v1.1.1)	Active monitoring & failure detection report
NFV-REL 005 (v1.1.1)	Quality Accountability Framework
NFV-SEC 001 (v1.1.1)	Security Problem Statement
NFV-SEC 002 (v1.1.1)	Security features in mgmt software report
NFV-SEC 003 (v1.1.1)	Security and Trust Guidance
NFV-SEC 004 (v1.1.1)	LI report
NFV-SEC 006 (v1.1.1)	Sec & Regulation report
NFV-SEC 009 (v1.1.1)	UCs for multi-layer host admin
NFV-SEC 010 (v1.1.1)	Retained Data Report
NFV-SWA 001 (v1.1.1)	Virtual Network Function Architecture
NFV-TST 001 (v1.1.1)	Pre-deployment Validation report



ADDITIONAL SLIDES

Release 3 WI Descriptions

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Work Item	Full Title	Type
EVE007	NFV; Evolution and Ecosystem; NFV Hardware Interoperability Requirements	Specification
EVE008	NFV; Management and Orchestration; Report on Usage Metering and Charging Use Cases and Architectural Study	Report
IFA016	NFV; Information Modeling; Papyrus Guidelines	Report
IFA017	NFV; Information Modeling; UML Modeling Guidelines	Report
IFA018	NFV; Acceleration Technologies; Network Acceleration Interface Specification	Specification
IFA019	NFV; Acceleration Technologies; Acceleration Resource Management Interface Specification	Specification
IFA020	NFV; Management and Orchestration; Report on NFV Orchestration functional decomposition options	Report
IFA021	NFV; Management and Orchestration; Report on management of NFV-MANO and automated deployment of EM and other OSS functions	Report
IFA022	NFV; Management and Orchestration; Report on Management and Connectivity for Multi-Site Services	Report
IFA023	NFV; Management and Orchestration; Report on Policy Management in MANO	Report
IFA024	NFV; Information Modelling; Report on External Touchpoints related to NFV Information Model	Report
REL006	NFV; Reliability; Requirements Specification for maintaining service availability and continuity when updating/upgrading software	Specification
SEC012	NFV; Security; System architecture for execution of sensitive NFV components Specification	Specification
SEC013	NFV; Security; Security Management and Monitoring Specification	Specification
SEC014	NFV; Security; Security Specification for MANO Components and Interfaces	Specification
TST005	NFV; Continuous Development and Integration; Report on use cases and recommendations for VNF Snapshot	Report
TST007	NFV; Testing; Guidelines on Interoperability Testing for VIM/VNFM	Report