



Welcome to the World of Standards



TST WORKING GROUP UPDATE

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SDN
OpenFlow
WORLD
CONGRESS

- Existing ETSI GSs (Group Specifications) related to testing
- New Work Items in the TST workgroup
- Open Source and other SDOs Test Activities
- ETSI NFV Plugtest

- ETSI NFV TST Webinar: Nov 10
 - <http://www.etsi.org/news-events/webinars>

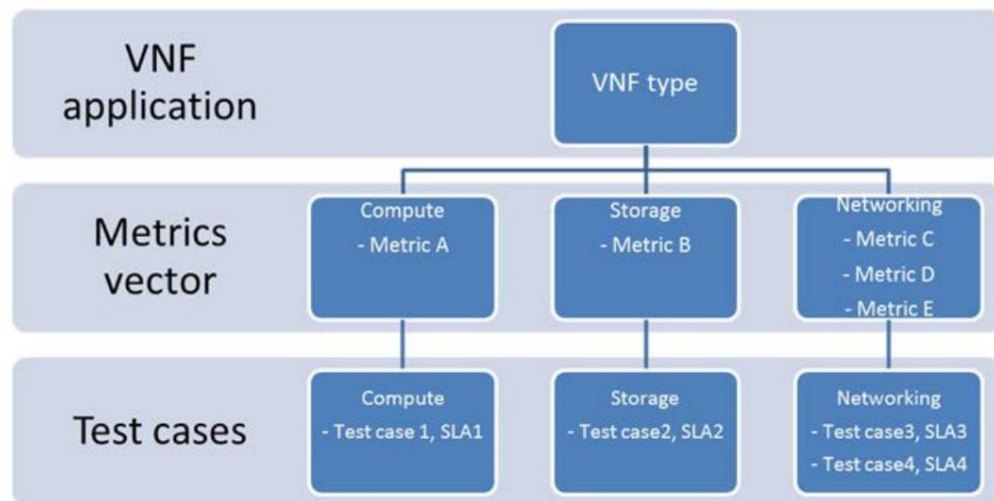
- Target audience:
 - All companies wanting to validate new SW, SW updates
 - CI/CD pipeline
- Content summary
 - Definition of SUTs
 - Test methods for pre-deployment validation of SUTs
 - Pre-deployment validation of NFV Infrastructure
 - Pre-deployment validation of VNFs
 - Pre-deployment validation of Network Services

ETSI GS NFV-TST 001 V1.1.1 (2016-04)



**Network Functions Virtualisation (NFV);
Pre-deployment Testing;
Report on Validation of NFV Environments and Services**

- Impact of virtualization on test methods
 - How to isolate the System Under Test (SUT)
 - HW vs SW test units
- Workload type impacts: control vs data plane testing
- VNF and NS validation
 - Lifecycle, control & data plane, autoscaling
- NFVI validation
- Examples!



- Target audience
 - Anyone concerned about interop of different NFV architecture components
- Content summary
 - Basic concepts
 - Definitions
 - Test specifications
 - Specifics about how the test specs should look like
 - SUT architecture
 - Diagrams with SUT/FUT, test inputs, environment, etc
 - Interop features
 - Series of features covered in the report

ETSI GS NFV-TST002 V<0.0.8> (<yyyy-mm>)



**Network Functions Virtualisation (NFV);
Report on NFV interoperability test methodology**


- VNF Package Management
- VNF SW Image Management
- NS Descriptor Management
- VNF Lifecycle Management
- VNF Fault, Configuration and Performance Management
- NS Lifecycle Management
- NS Fault and Performance Management

TST004 - Report on Test Plan for Path Implementation through NFVI



- Guidelines for test plans for path implementations between NS endpoints and the involved VNFs
- Looks at all the possible implementations
 - SDN applications
 - Different ways of arranging and federating SDN controllers
 - Different arrangements of network switching and forwarding (physical and virtual)
- Primary objective: benchmarking and performance
- Will be abstract enough to handle all implementations
- Combinations of protocols and functions might uncover non-interoperable methods

Objectives

- Describe use cases that would benefit
 - Study the conditions for VNF/VNFC and VNF data snapshotting
 - Recommendations for support
 - Define end to end orchestration and framework
-  Will look at currently available options, including open source

- Guidance on how to leverage CI/CD and DevOps techniques
- SW provider \leftrightarrow Service Provider
- May impact SW package description
- Will focus on the testing aspects
 - Use cases
 - Test steps and approach
 - Metrics and methods of measurement
 - Post handoff tests

TST007 - Guidelines on Interoperability Testing for MANO



- Focus on features applicable directly for interoperability between VNF, MANO and VIM-NFVI
- Focus:
 - VNF and NS Lifecycle management
 - Software Image Management.
 - VNF Performance and Fault Management
- This WI is a follow-on to NFV TST002
- The WI will be applicable for all implementations aligned with ETSI NFV architecture; references to open source implementations may be included as examples

OPNFV Testing Projects



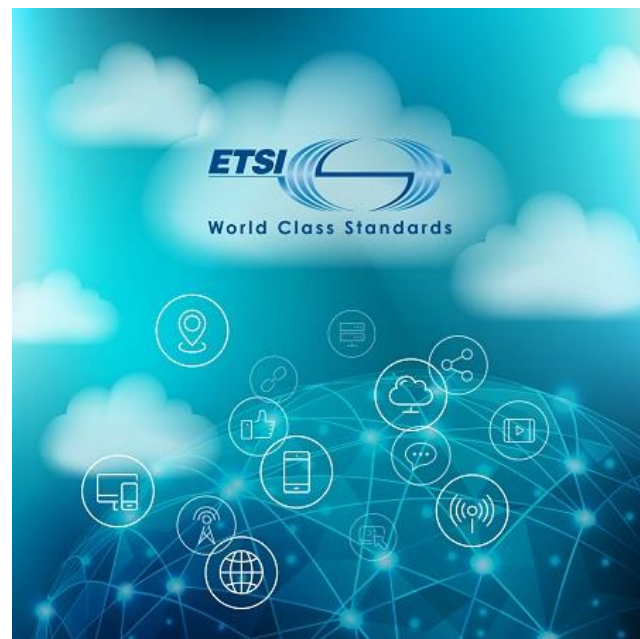
Name	Purpose	Notes
Pharos	Infrastructure - Federated labs for CI and feature testing	
Functest	Feature testing (production deployment)	Umbrella test project with database/API and dashboard
Yardstick	Framework with generic test cases for VNFI (compute, storage and networking)	Framework and methodology for other test projects to plugin
VSPERF	Virtual switch benchmarking	Methodology and tools
CPERF	Controller performance benchmarking	Continuous
Qtip	Platform component benchmarking	Compute, storage, NW tests
Policy Test	Network configuration policy tests	
Models	Information modeling	Not testing per se
Storeperf	Tool to measure block and object storage performance of an NFVI	Currently uses Fuel , is standalone
Bottlenecks	Framework to look for system constraints	Standalone

- **NFV Benchmarking (IETF)**
 - Benchmarking Virtual Network Functions and Their Infrastructure
 - draft-ietf-bmwg-virtual-net-02
 - Benchmarking methodology for Virtualization Network Performance (but very network / vswitch focused)
 - draft-huang-bmwg-virtual-network-performance-01
 - Benchmarking Virtual Switches in OPNFV
 - draft-vsperf-bmwg-vswitch-opnfv-02 – Proposed
 - VNF Benchmarking Methodology
 - draft-rosa-bmwg-vnfbench-00
- **Devops (IRTF)**
 - DevOps for Software-Defined Telecom Infrastructures
 - draft-unify-nfvrg-devops-04
- **SDN Controller benchmarking (IETF)**
 - Benchmarking Methodology for SDN Controller Performance
 - draft-ietf-bmwg-sdn-controller-benchmark-meth-01
 - Terminology for Benchmarking SDN Controller Performance
 - draft-ietf-bmwg-sdn-controller-benchmark-term-01

1st NFV Plugtest



- Hosted by **5Tonic** in Leganes, near Madrid, Spain, 23rd Jan – 3rd Feb 2017
- Details at: www.etsi.org/nfvplugtest
- Free & Open to any VNF, MANO, VIM&NFVI implementation
- Remote integration & pre-testing: Nov-Dec 2016
- Main scope: IOP for NFV Rel 2 capabilities:
 - VNF Package, SW Image and NSD Management,
 - VNF & NS Life Cycle Management,
 - VNF & NS Fault & Performance Management.
- Test Plan
 - Based on NFV-TST002 IOP Test Methodology
 - In-line with NFV-TST007 IOP Guidelines for MANO
- Supporting Open Source projects:





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
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ADDITIONAL SLIDES

PUT THE TOPIC HEADING