PLUGTESTS UPDATE
TST WG ACTIVITIES

ETSI
World Class Standards

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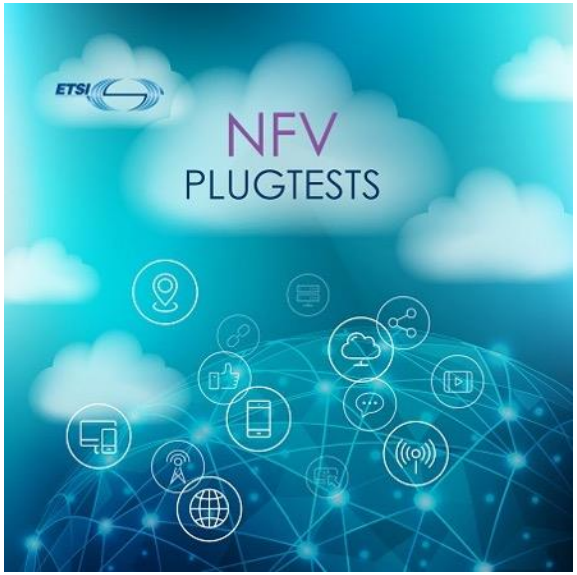
NFV & ZERO TOUCH WORLD CONGRESS

THE NFV PLUGTESTS PROGRAMME

PLUGTESTS INTEROP EVENTS → PLUGTESTS INTEROP EVENTS → PLUGTESTS INTEROP EVENTS



Open Source MANO · openstack CLOUD SOFTWARE · OPEN BATON · OPNFV

- **Neutral** and **coordinated** framework for **collaborative** testing and validation activities among different organizations
  - Continuous and ubiquitous environment
  - Periodic face to face events
- ETSI does **not** certify or endorse participating companies or products:
  - We provide the framework, the means, the methodology, the procedures, the test plan, the venue …
  - Actual testing is run collaboratively by participants
- **Free** and **open** to any organisation providing an implementation to test or to support the testing

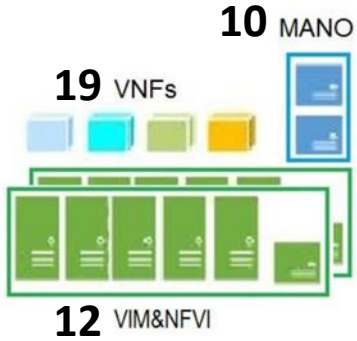
http://www.etsi.org/nfvPlugtestsProgramme

NFV PLUGTESTS HIVE NETWORK

HIVE: **H**ub for **I**nteroperability and **V**alidation at **E**TSI

THE PROGRAMME – 2ND NFV PLUGTESTS

2nd NFV Plugtests



- Sophia Antipolis, January 2018, at ETSI
- **6** weeks of remote pre-testing
- **1** weeks on-site
- **45** participating companies
- **38** remote sites
- **41** Functions Under Test
- **100** engineers on-site + **100** remote
- **189** Test Sessions
- Co-located with 1st Open Source MANO Hackfest

2ND NFV PLUGTESTS - SCOPE

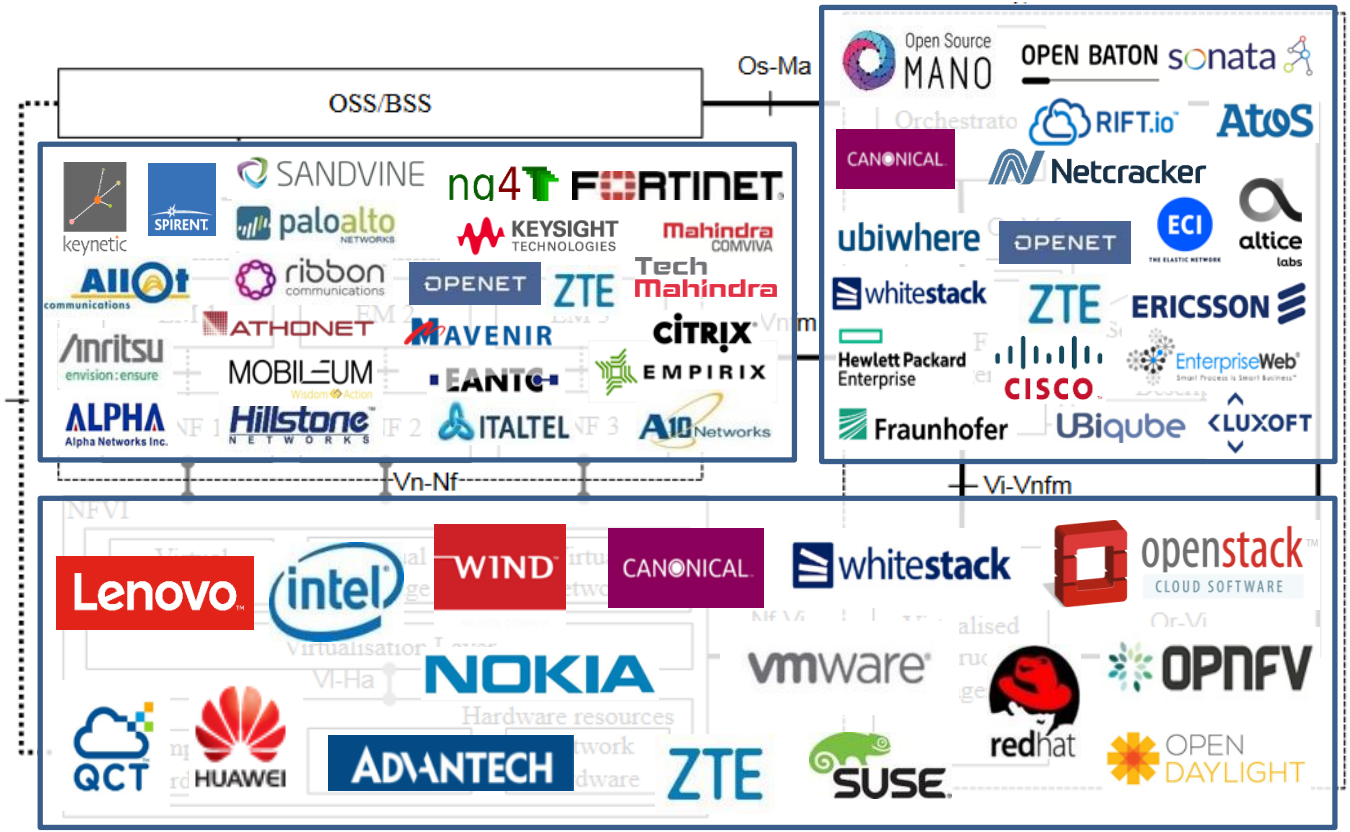
Interop Test Sessions

- Pre-testing:
  - on-boarding, instantiation, termination,
  - NS & VNF manual scaling,
  - NS updates: stop/re-start VNF
- Multi-VNF NS:
  - Fault and Performance Management,
  - NS&VNF auto scaling from several triggers
- Enhanced Platform Awareness
- Multi-Site
- Specific VNFMs
- Automated LCM Validation

But also:

- API Validation Track (experimental)
- Co-located OSM Hackfest

NFV PLUGTESTS PROGRAMME PARTICIPANTS



50+ participating companies

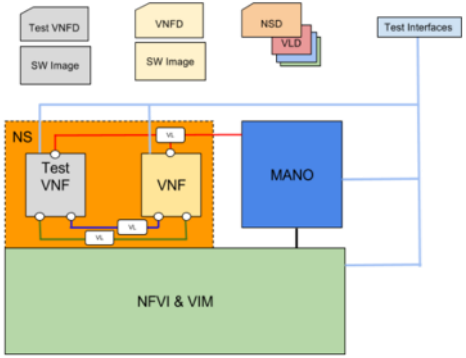
Observers and supporters:

BT
CableLabs
NTT docomo
orange
Telefónica
telenor

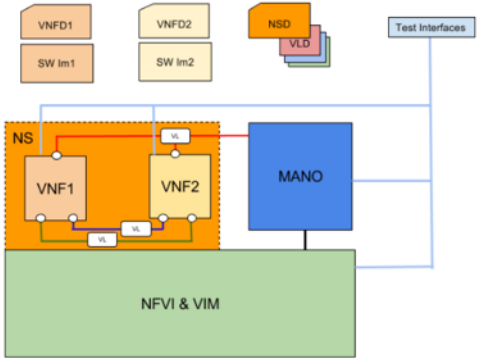
NEXTWORKS
ENGINEERING FORWARD

IOP TEST CONFIGURATIONS

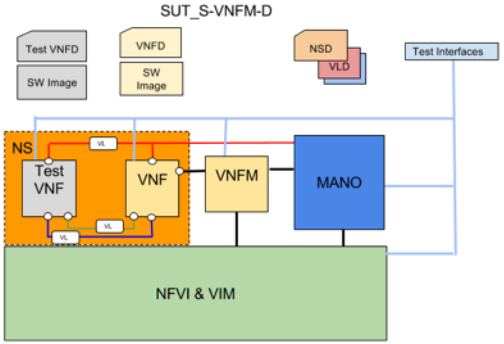
Pre-Testing

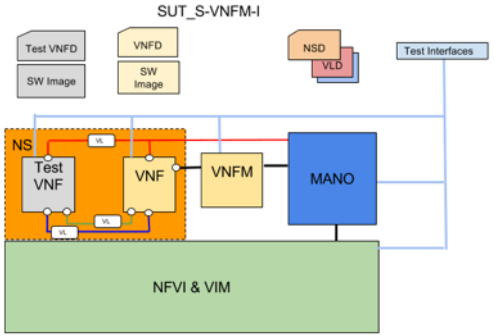


Multi-Vendor NS

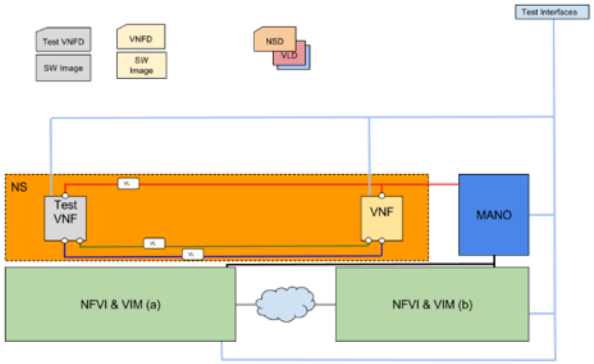


Specific-VNFM (D/I)





Multi-Site



IOP OVERALL RESULTS

Overall Results	Number of Test Sessions	Interoperability (TCs Run)		TCs Not Run	TCs Totals	
		OK	NO	NA	Run	Total
	189	1297 (94.4%)	77 (5.6%)	580 (29.7%)	1374 (70.3%)	1954 (100%)

Table 31: IOP Overall Results

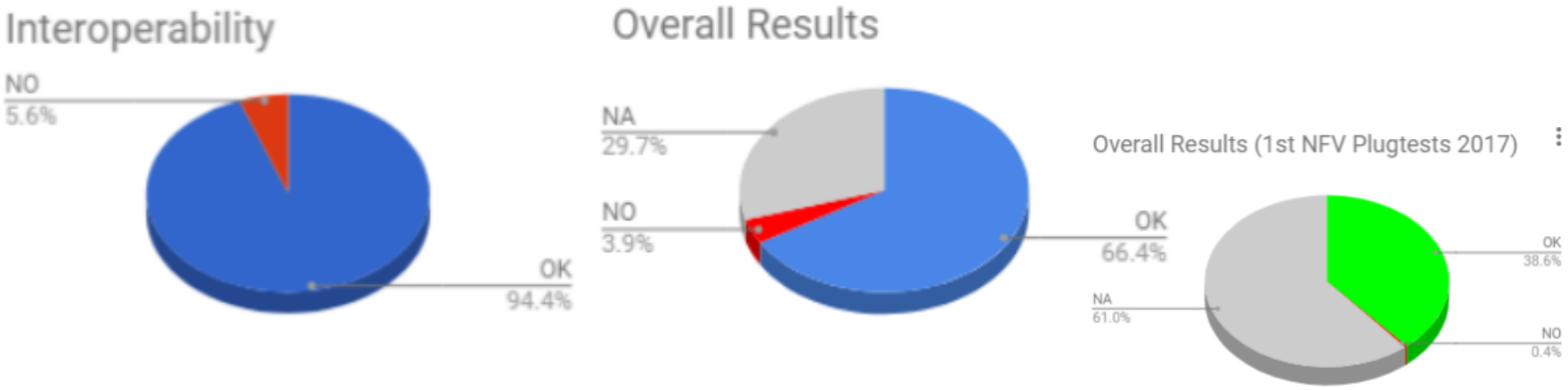
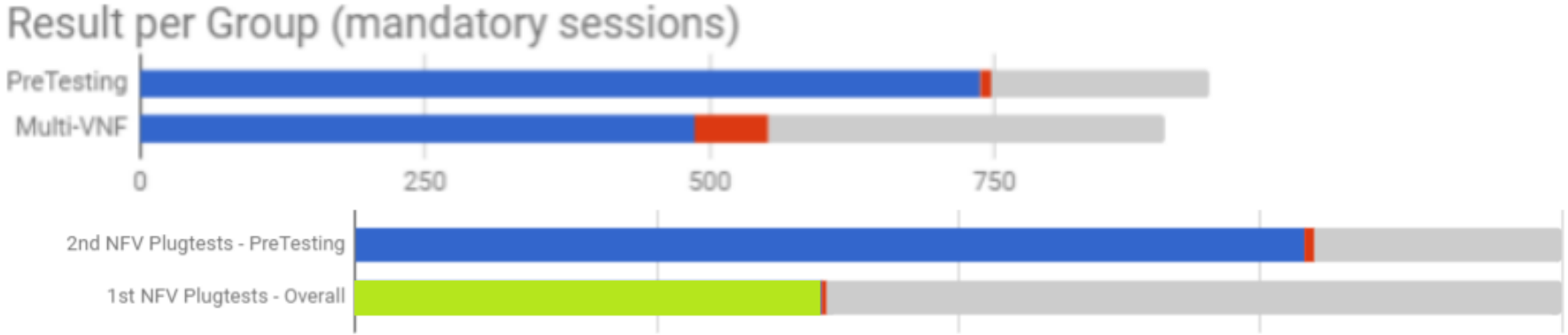


Figure 20. IOP Overall results 2nd NFV Plugtests - 2018 (%)

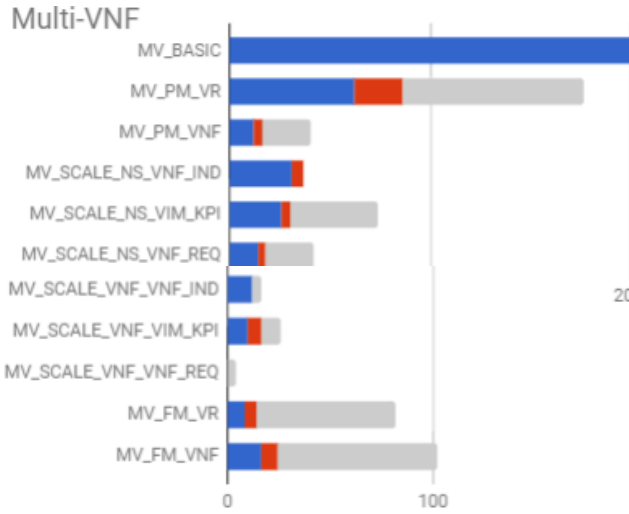
RESULTS - MANDATORY SESSIONS

Results per Group (mandatory sessions)	Number of Test Sessions	Interoperability (TCs Run)		TCs Not Run	TCs Totals	
		OK	NO	NA	Run	Total
Pre-testing	88	738 (98.8%)	9 (1.2%)	192 (20.4%)	747 (79.5%)	939
Multi-VNF	76	487 (88.4%)	64 (11.6%)	348 (38.7%)	551(61.3%)	899

Table 32. Results per Group (mandatory sessions)



RESULTS – MULTI-VNF SUBGROUPS



Multi-VNF Sub-Groups	Interoperability (TCs Run)		TCs Not Run	TCs Totals	
	OK	NO	NA	Run	Total
MV_BASIC	296 (99.3%)	2 (0.7%)	2 (0.7%)	298 (99.3%)	300
MV_PM_VR	62 (72.1%)	24 (27.9%)	90 (51.1%)	86 (48.9%)	176
MV_PM_VNF	12 (75.0%)	4 (25.0%)	24 (60.0%)	16 (40.0%)	40
MV_SCALE_NS_VNF_IND	31 (83.8%)	6 (16.2%)	0 (0.0%)	37 (100.0%)	37
MV_SCALE_NS_VIM_KPI	26 (86.7%)	4 (13.3%)	44 (59.5%)	30 (40.5%)	74
MV_SCALE_NS_VNF_REQ	14 (77.8%)	4 (22.2%)	24 (57.1%)	18 (42.9%)	42
MV_SCALE_VNF_VNF_IND	12 (100.0%)	0 (0.0%)	4 (25.0%)	12 (75.0%)	16
MV_SCALE_VNF_VIM_KPI	10 (62.5%)	6 (37.5%)	10 (38.5%)	16 (61.5%)	26
MV_SCALE_VNF_VNF_REQ	0 (0.0%)	0 (0.0%)	4 (100.0%)	0 (0.0%)	4
MV_FM_VR	8 (57.1%)	6 (42.9%)	68 (82.9%)	14 (17.1%)	82
MV_FM_VNF	16 (66.7%)	8 (33.3%)	78 (76.5%)	24 (23.5%)	102

RESULTS – OPTIONAL SESSIONS

Results per Group (optional sessions)	Number of Test Sessions	Interoperability (TCs Run)		TCs Not Run	TCs Totals	
		OK	NO	NA	Run	Total
Multi-VNF-EPA	8	9 (75%)	3 (25%)	14 (53.8%)	12 (46.2%)	26
Multi-Site	9	32 (100%)	0 (0%)	2 (5.9%)	32 (94.1%)	34
S-VNFM-D	0	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0
S-VNFM-I	0	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0
Auto-LCM-validation	8	31 (96.9%)	1 (3.1%)	16 (33.3%)	32 (66.7%)	48

Table 34. Results per Group (optional sessions)

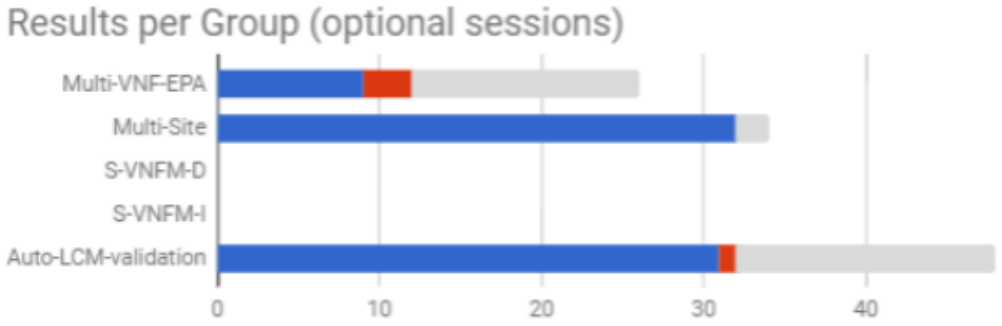
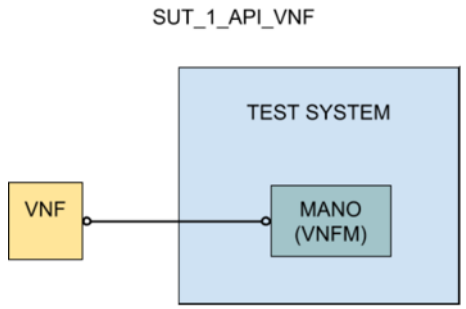
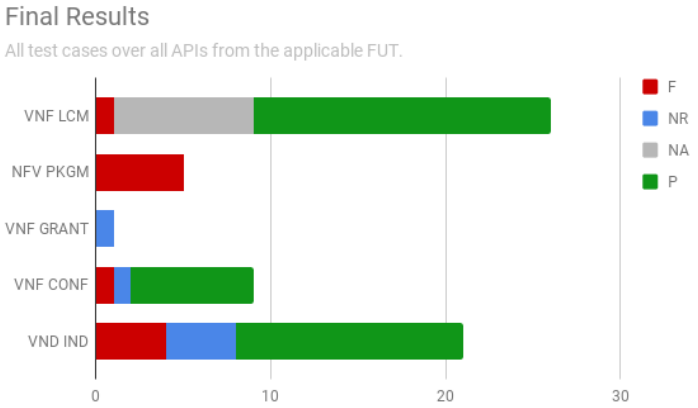


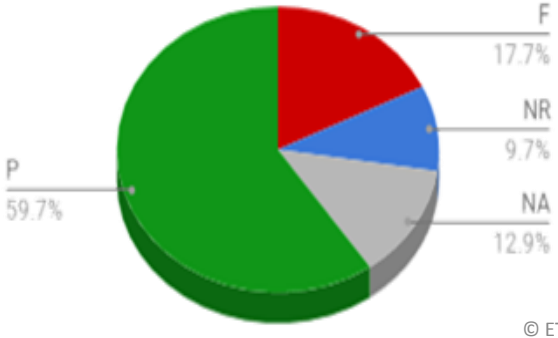
Figure 24. Results per Group (optional sessions)

API TRACK (EXPERIMENTAL)

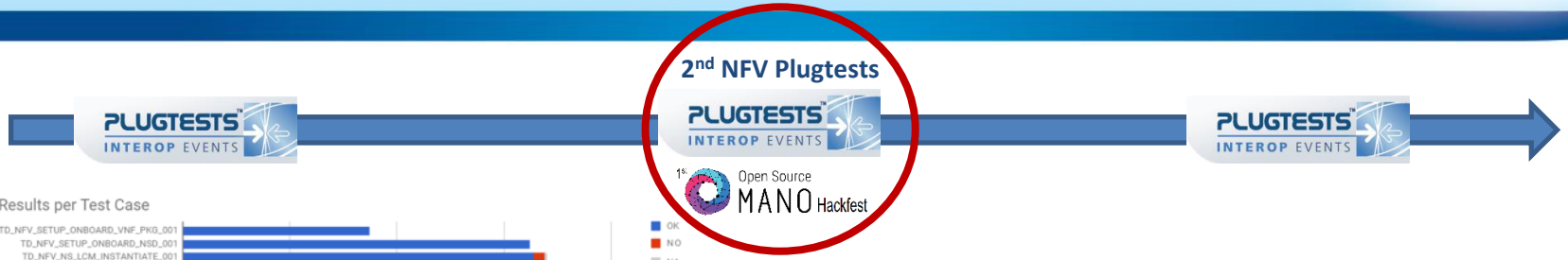
- **Scope**: NFV API compliance in isolation (no interop)
  - Requests and responses validity
  - Notifications subscriptions management
- **5**/17 APIs in scope, 29 Test Cases
  - VNF LCM, NFV PKGM, VNF GRANT, VNF CONF, VND IND
- Test system built from **OpenAPIs** by ETSI NFV SOL WG (SOL002 and SOL003)

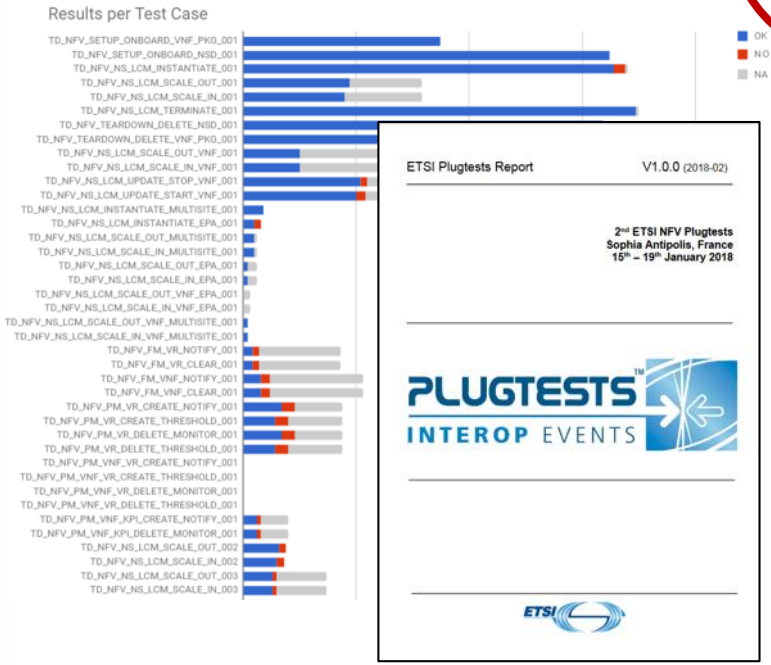






2ND NFV PLUGTESTS OUTCOME





- [2nd NFV Plugtests Test Plan]
- [2nd NFV Plugtests Report]
  - Event overview
  - Participation
  - Overall results
  - Feedback:
    - ETSI NFV IFA
    - ETSI NFV SOL (SOL002, SOL003, OpenAPIs)
    - ETSI NFV TST (TST007, TST010)

NEXT: 3RD NFV PLUGTESTS

3rd NFV Plugtests

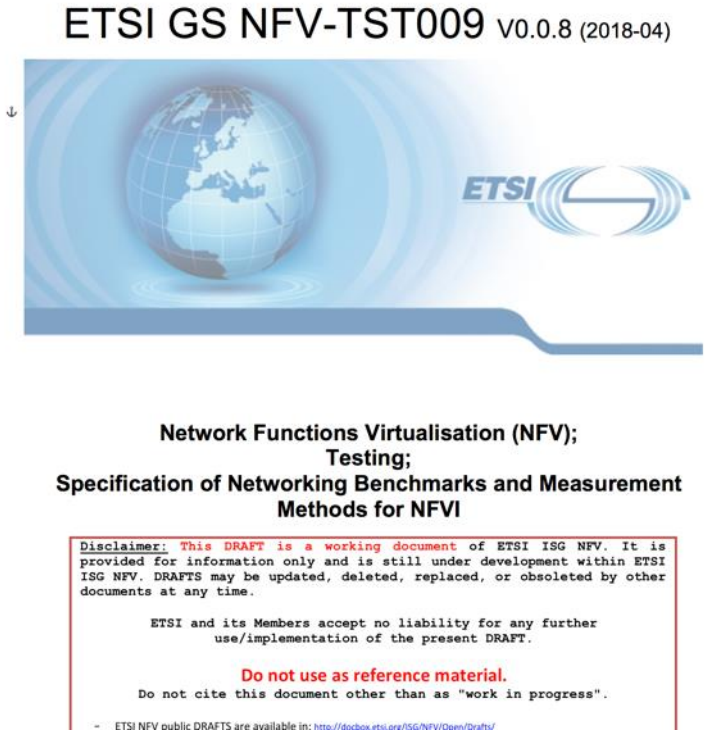
- Sophia Antipolis, 29 May – 8 June 2018, at
- **2** weeks on-site
- Interop Test Sessions
- API Testing
- Multi-VNF Service Demos: 5G, MEC, Zero-Touch, …
- Co-located with OPNFV Plugfest (2nd week)
- www.etsi.org/nfvplugtests3

PLUGTESTS/PLUGFEST COLLABORATION

- OPNFV scenarios
- OPNFV Dovetail
- Addition of Test Cases

TST009 – NFVI NETWORK BENCHMARKING

- Based on existing benchmarking campaigns
- Test setups and configuration
- Test device/function capabilities
- Benchmarks
  - Throughput
  - Latency
  - Delay Variation
  - Loss
  - …more…
- Methods of measurement
- Follow-on activities


ETSI GS NFV-TST009 V0.0.8 (2018-04)

Network Functions Virtualisation (NFV);
Testing;
Specification of Networking Benchmarks and Measurement Methods for NFVI

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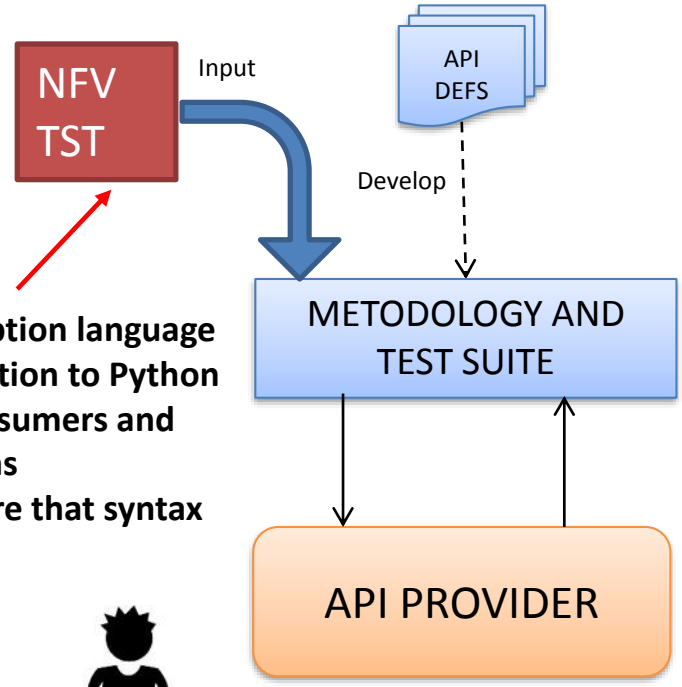
- ETSI NFV public DRAFTS are available in: http://docbox.etsi.org/ISG/NFV/Open/Drafts/

TST010 – MANO API COMPLIANCE TESTING

- Methodology
  - Test configuration
  - Test templates
    - What to be tested for each type of exchange
  - How to leverage automated generation
- One section per reference point
  - One section per interface (API)
- SW Deliverables
  - Automated test suite



Challenges:

- **Test description language and translation to Python**
- **Testing consumers and notifications**
- **Testing more that syntax**

OPNFV COLLABORATION

- TST006 (DevOps & CI/CD)
  - OPNFV XCI
- TST008 (NFVI Metrics)
  - OPNFV Barometer
  - OPNFV VES (VNF Event Stream)
- TST009
  - OPNFV VSPERF
- TST010
  - OPNFV Functest
  - Others…

Thank you!