PAVING THE WAY FOR NFV INTEROPERABILITY

THE ETSI NFV PLUGTESTS PROGRAMME

Presented by Silvia Almagia, ETSI

SDN NFV WORLD CONGRESS

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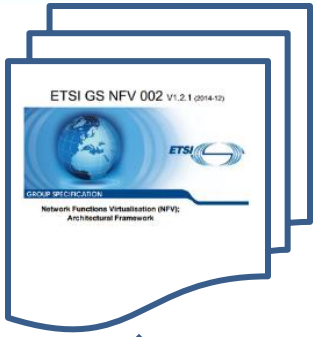
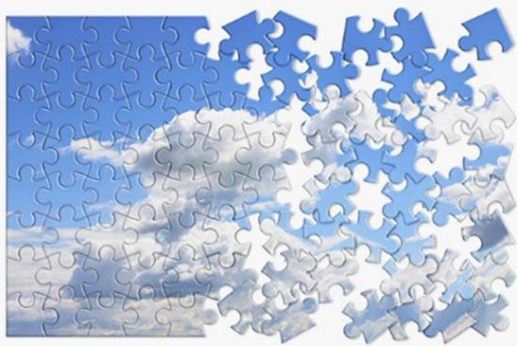
WHY PLUGTESTS?





Plugtests:

- Foster interoperability
- Gather feedback
- Validate and improve standards

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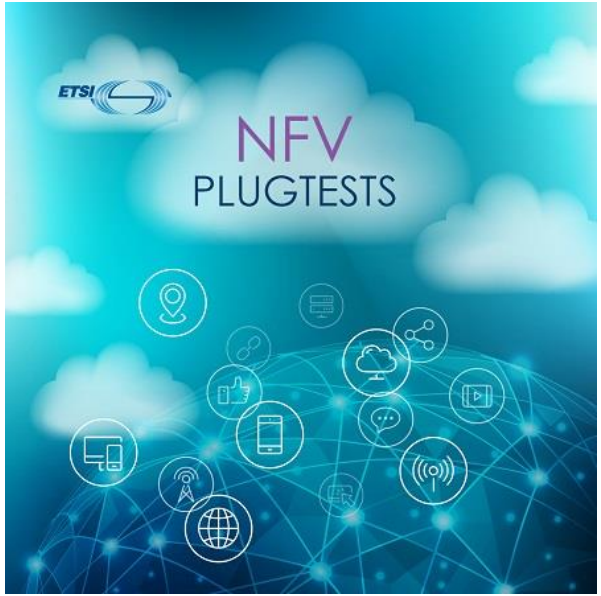
THE NFV PLUGTESTS PROGRAMME



- **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

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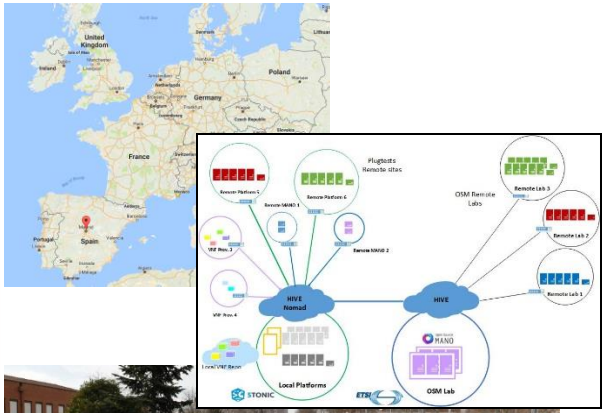
THE PROGRAMME – 1ST NFV PLUGTESTS

1st NFV Plugtests



1st NFV Plugtests

- Madrid, January 2017, hosted by 5TONIC
- **6** weeks of remote pre-testing
- **2** weeks on-site
- **31** participating companies
- **29** remote labs
- **35** Functions Under Test
- **80** engineers on-site + **80** remote
- **4** supporting open source communities:

Open Source MANO · OPEN BATON · OPNFV · OPEN·O

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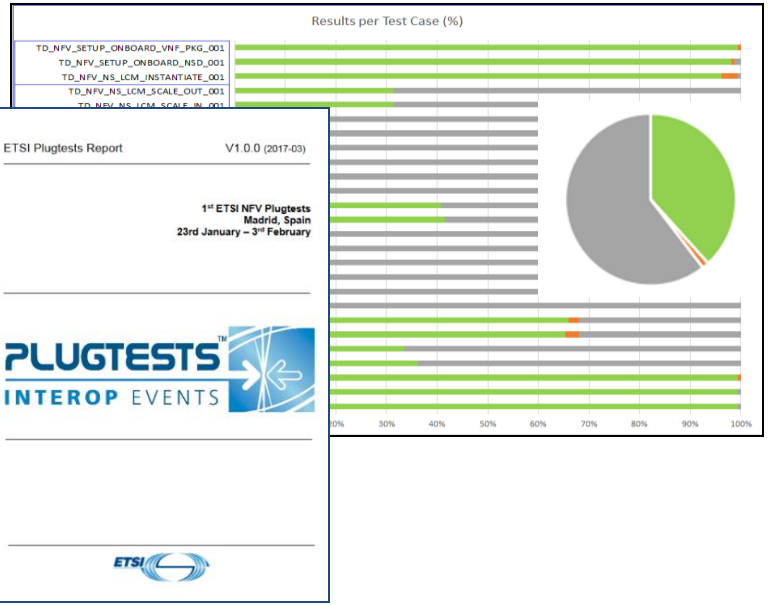
THE PROGRAMME – 1ST NFV PLUGTESTS OUTCOME

1st NFV Plugtests



- **Test Plan** contributed to ETSI NFV-TST007
  - On-boarding, instantiation, scaling, update, termination
- **160** Test Sessions
- **+1500** individual test results reported
- High interop rates on on-boarding, instantiation and termination
- **Plugtests Report** contributed to ETSI NFV
  - Overall results
  - Consolidated feedback
  - Recommendations

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THE PROGRAMME – 2ND NFV PLUGTESTS

- 15-19 January 2018, ETSI, Sophia Antipolis, France
- Build on the learnings of the 1st NFV Plugtests
  - expand scope
  - optimise resources
- Registration **OPEN** until 18th October
- Remote integration starting on 16th October
- Co-located with 1st OSM Hackfest

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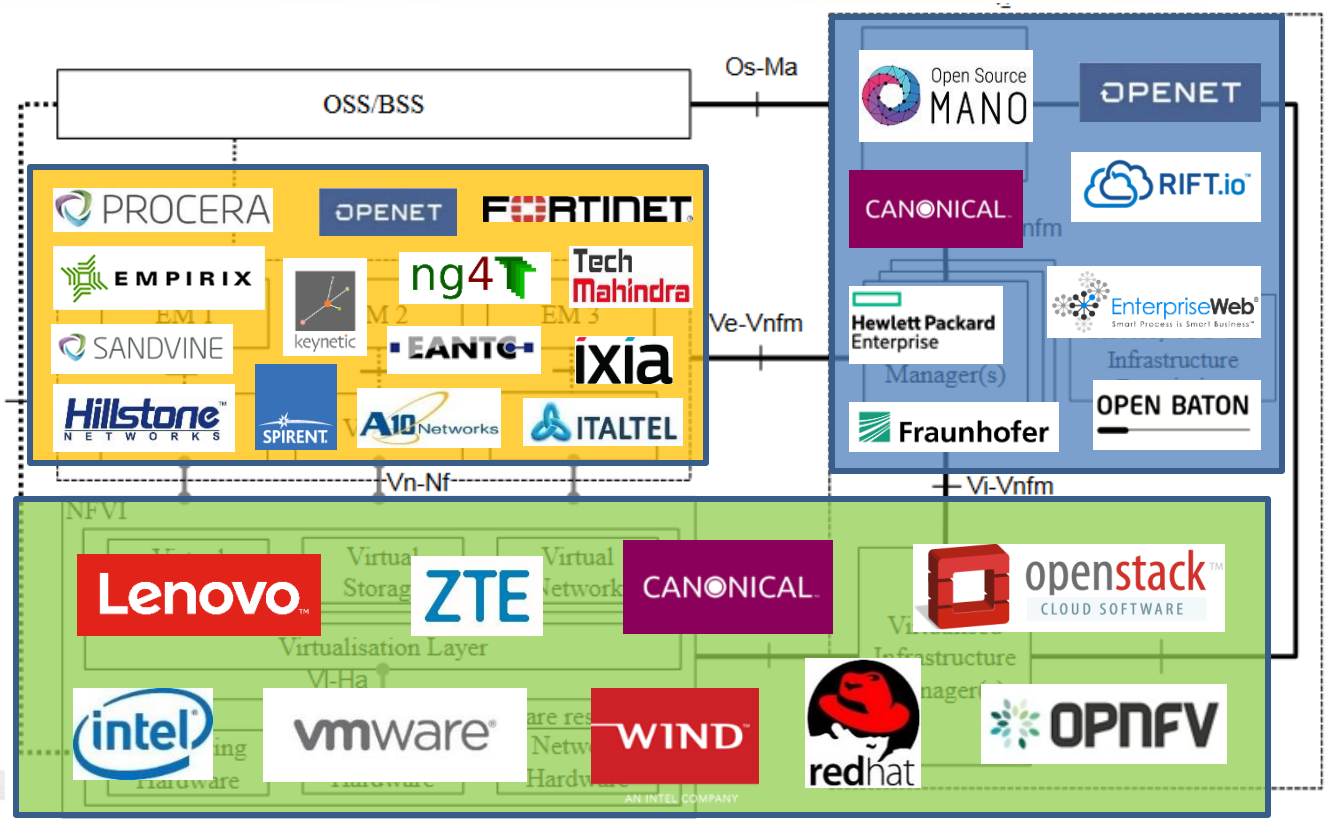
PARTICIPANTS

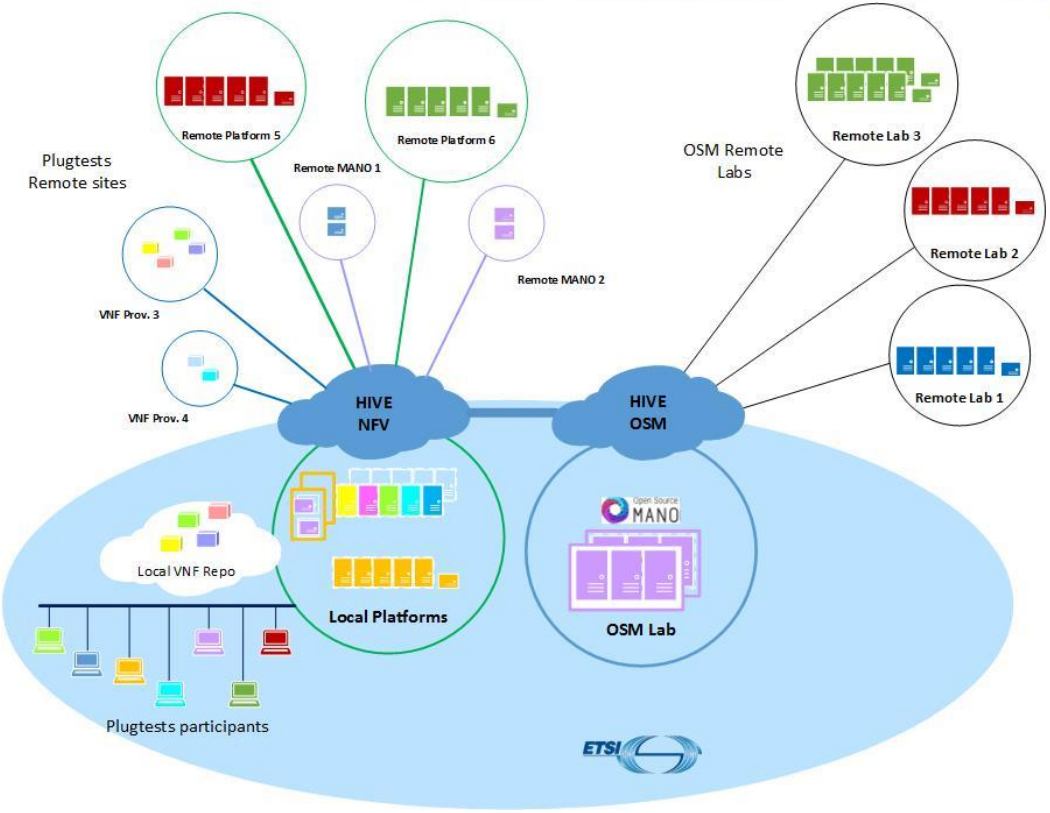
- 4 supporting open source communities
- 30+ Functions Under Test (commercial and open source)
- Still a few days to register



THE PROGRAMME ENABLER…

Continuous and ubiquitous collaborative testing environment by securely interconnecting remote labs to ETSI

HIVE: Hub for Interoperability and Validation at ETSI



- Semi-permanent VPN Hub
- Providing seamless access among connected labs and local infrastructure at ETSI
- Supporting remote integration, pre-testing, regular Plugtests events..
- … but also PoCs, experimental activities, API validation, and other types of testing

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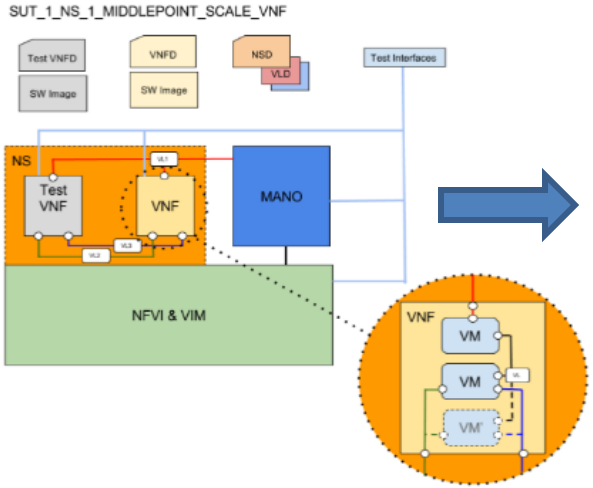
TEST PLAN DEVELOPMENT

ETSI World Class Standards

PLUGTESTS INTEROP EVENTS

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



Interoperability Test Description				
Identifier	TD_NFV_NS_LCM_SCALE_OUT_VNF_001			
Test Purpose	To verify that a VNF in a NS can be successfully scaled out (by adding VNFC instances (VMs)) when triggered by a MANO operator			
Configuration	SUT_1_NS_1_ENDPOINT_SCALE_VNF SUT_1_NS_1_MIDDLEPOINT_SCALE_VNF			
References	ETSI GS NFV-IFA005 V2.1.1 (clause 5.3.4) ETSI GS NFV-IFA006 V2.1.1 (clauses 7.3.1, 7.4.1) ETSI GS NFV-IFA013 V2.1.1 (clause 7.3.4) ETSI GS NFV-IFA010 V2.1.1 (clauses 6.2.3, 6.3.3)			
Applicability	* MANO can request VIM_NFVI to allocate virtualised resources * VIM_NFVI supports allocating virtualised resources * MANO supports triggering scale out with an operator's action * MANO supports scale out by adding VNFC instances (VMs) * NS/VNF supports scale out by adding VNF instances (VMs)			
Pre-test conditions	* NS is instantiated (TD_NFV_NS_LCM_INSTANTIATE_001)			
Test Sequence	Step	Type	Description	Result
	1	Stimulus	Trigger NS scale out (by adding VNFC instances (VMs) to a VNF in the NS) in MANO with an operator action	
	2	IOP Check	Verify that the requested resources have been allocated by the VIM according to the descriptors	
	3	IOP Check	Verify that the additional VM(s) have been deployed (i.e by querying the VIM)	
	4	IOP Check	Verify that the additional VM(s) are running and are reachable through the management network	
	5	IOP Check	Verify that the additional VM(s) are connected to the VL(s) according to the descriptors	
	6	IOP Check	Verify that NS has been scaled out by running the end-to-end functional test	
IOP Verdict				

Open and continuous process

Test plan:

- Implementation agnostic
- Functional level

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TEST PLAN SCOPE

- Leverage 1st NFV Plugtests Test Plan:
  - NS &VNF on-boarding
  - NS & VNF instantiation
  - NS & VNF scaling
  - NS updates
  - NS & VNF termination
- Consider new aspects:
  - fault and performance management,
  - multi-site, network path,
  - enhanced platform awareness,
  - NFV APIs …
- Final scope and test plan shaped by
  - Participants
  - Supporting Open Source Communities
  - ETSI NFV

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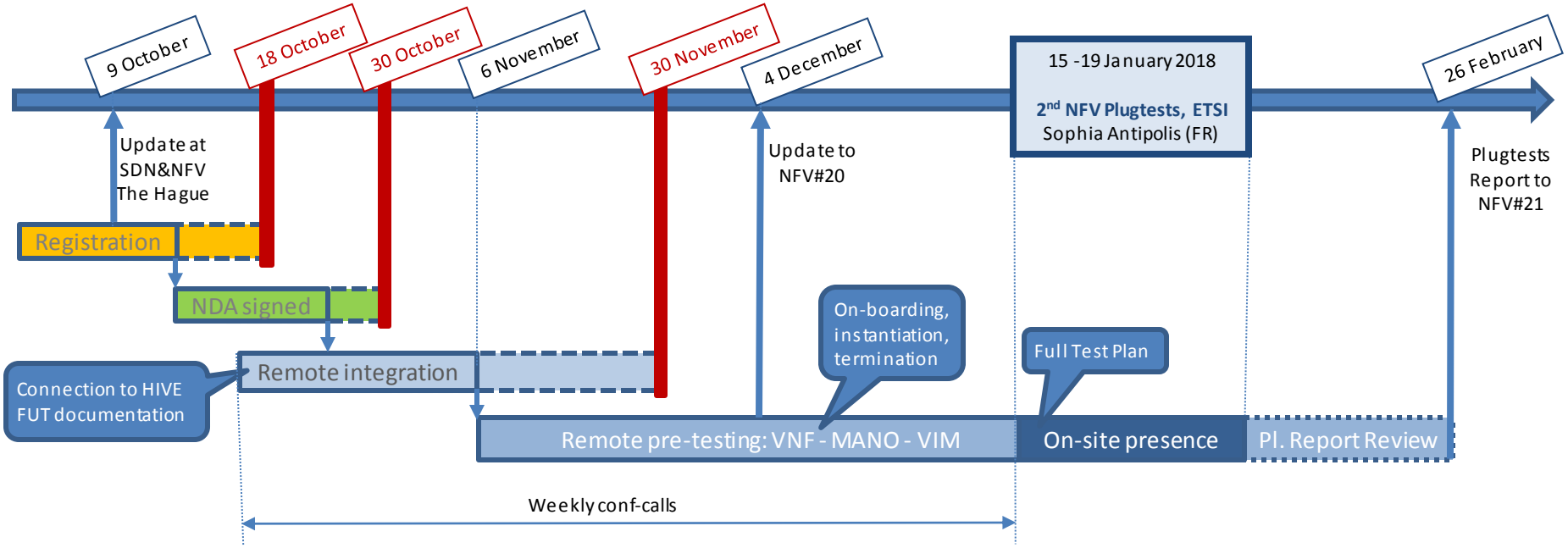
TIMELINE



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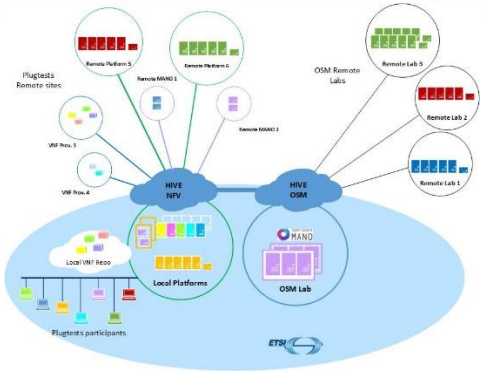
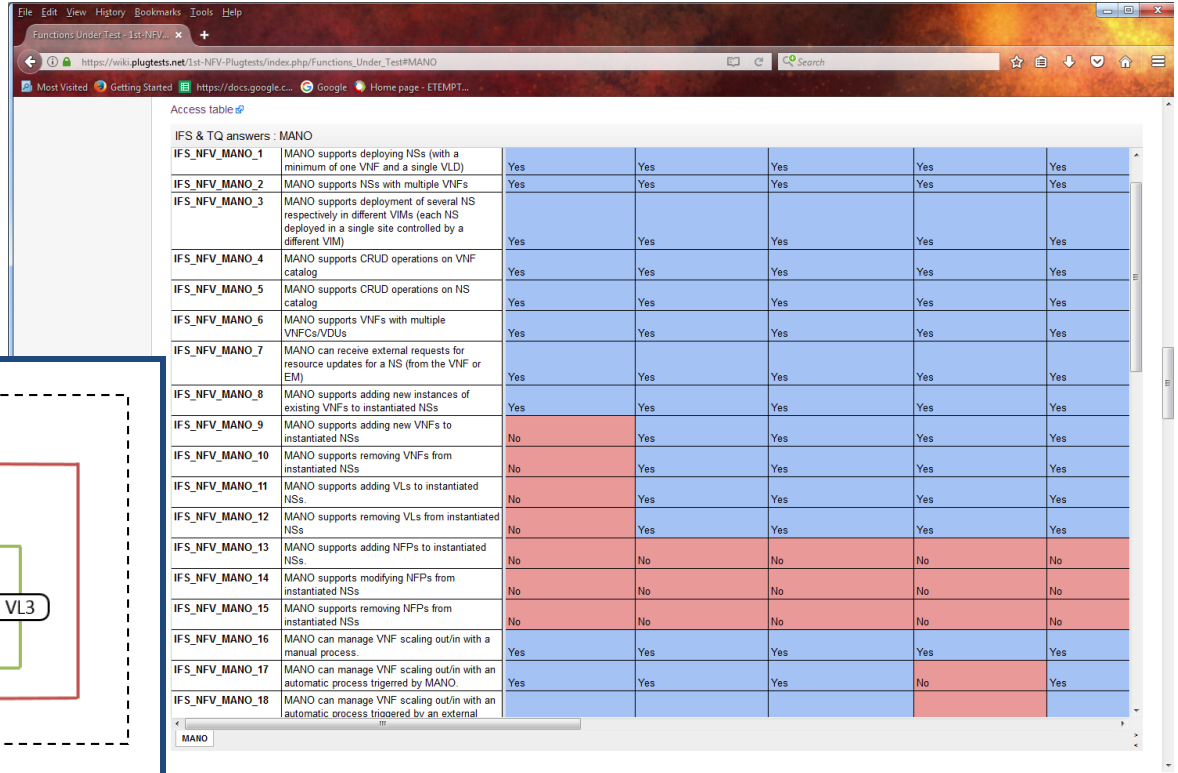
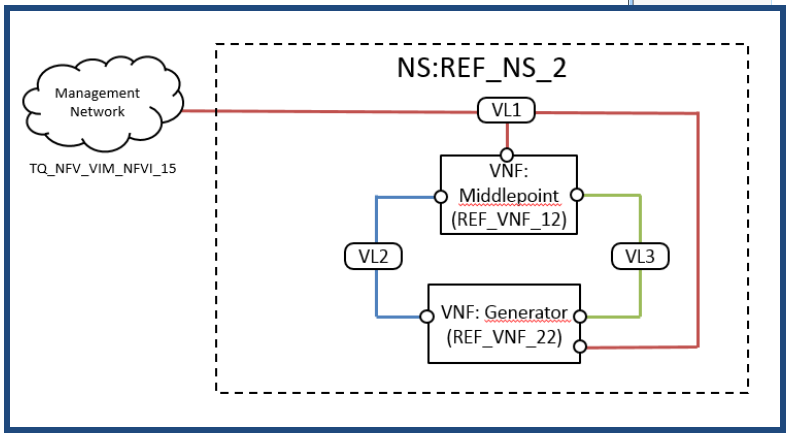
REMOTE INTEGRATION





IFS_NFV_MANO_1	MANO supports deploying NSs (with a minimum of one VNF and a single VLD)	Yes	Yes	Yes	Yes	Yes
IFS_NFV_MANO_2	MANO supports NSs with multiple VNFs	Yes	Yes	Yes	Yes	Yes
IFS_NFV_MANO_3	MANO supports deployment of several NS respectively in different VIMs (each NS deployed in a single site controlled by a different VIM)	Yes	Yes	Yes	Yes	Yes
IFS_NFV_MANO_4	MANO supports CRUD operations on VNF catalog	Yes	Yes	Yes	Yes	Yes
IFS_NFV_MANO_5	MANO supports CRUD operations on NS catalog	Yes	Yes	Yes	Yes	Yes
IFS_NFV_MANO_6	MANO supports VNFs with multiple VNFCs/VDUs	Yes	Yes	Yes	Yes	Yes
IFS_NFV_MANO_7	MANO can receive external requests for resource updates for a NS (from the VNF or EM)	Yes	Yes	Yes	Yes	Yes
IFS_NFV_MANO_8	MANO supports adding new instances of existing VNFs to instantiated NSs	Yes	Yes	Yes	Yes	Yes
IFS_NFV_MANO_9	MANO supports adding new VNFs to instantiated NSs	No	Yes	Yes	Yes	Yes
IFS_NFV_MANO_10	MANO supports removing VNFs from instantiated NSs	No	Yes	Yes	Yes	Yes
IFS_NFV_MANO_11	MANO supports adding VLs to instantiated NSs.	No	Yes	Yes	Yes	Yes
IFS_NFV_MANO_12	MANO supports removing VLs from instantiated NSs	No	Yes	Yes	Yes	Yes
IFS_NFV_MANO_13	MANO supports adding NFPs to instantiated NSs.	No	No	No	No	No
IFS_NFV_MANO_14	MANO supports modifying NFPs from instantiated NSs	No	No	No	No	No
IFS_NFV_MANO_15	MANO supports removing NFPs from instantiated NSs	No	No	No	No	No
IFS_NFV_MANO_16	MANO can manage VNF scaling out/in with a manual process.	Yes	Yes	Yes	Yes	Yes
IFS_NFV_MANO_17	MANO can manage VNF scaling out/in with an automatic process trigerred by MANO.	Yes	Yes	Yes	No	Yes
IFS_NFV_MANO_18	MANO can manage VNF scaling out/in with an automatic process triggered by an external					



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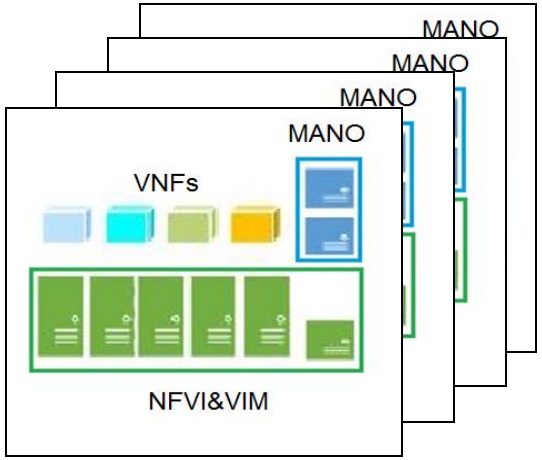
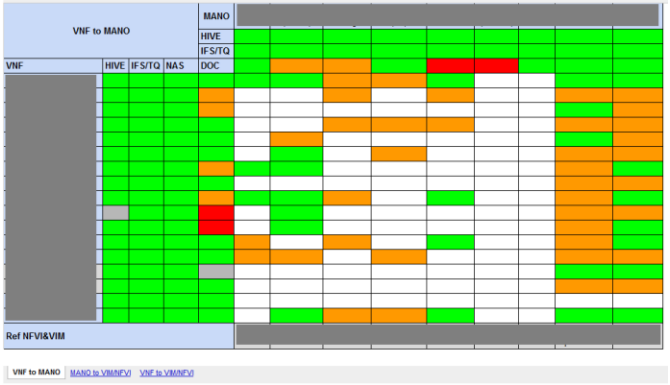
REMOTE PRE-TESTING

- Sanity check:
  - connectivity,
  - credentials
  - images,
  - descriptors
  - APIs
- Basic testing:
  - On-boarding
  - Instantiation
  - Termination
- For all possible combinations of MANO + VIM + VNF





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ONSITE – INTENSIVE TEST SESSIONS

Multiple Parallel Test Tracks

Daily wrap-up meetings

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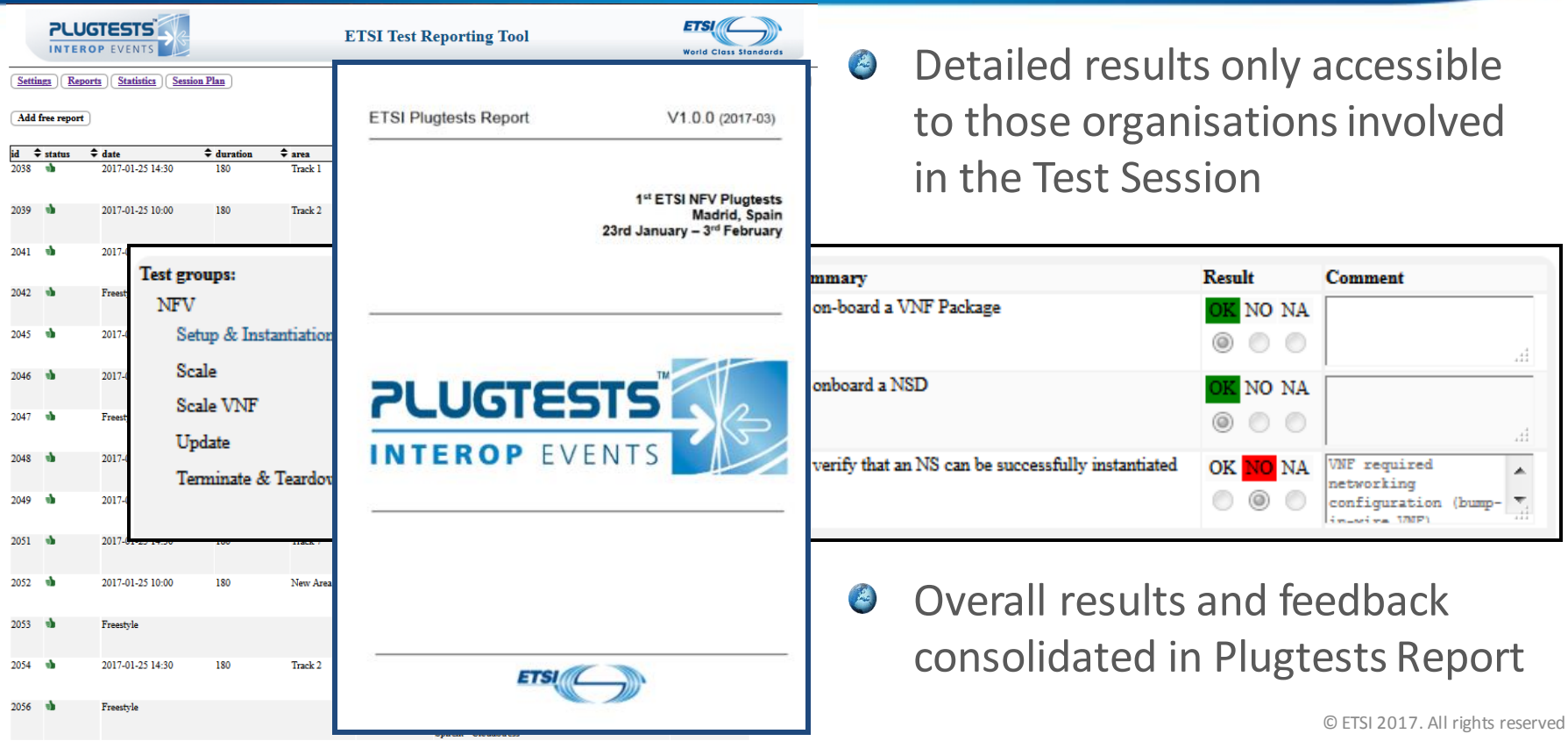
TEST SESSION REPORTS



- Detailed results only accessible to those organisations involved in the Test Session
- Overall results and feedback consolidated in Plugtests Report

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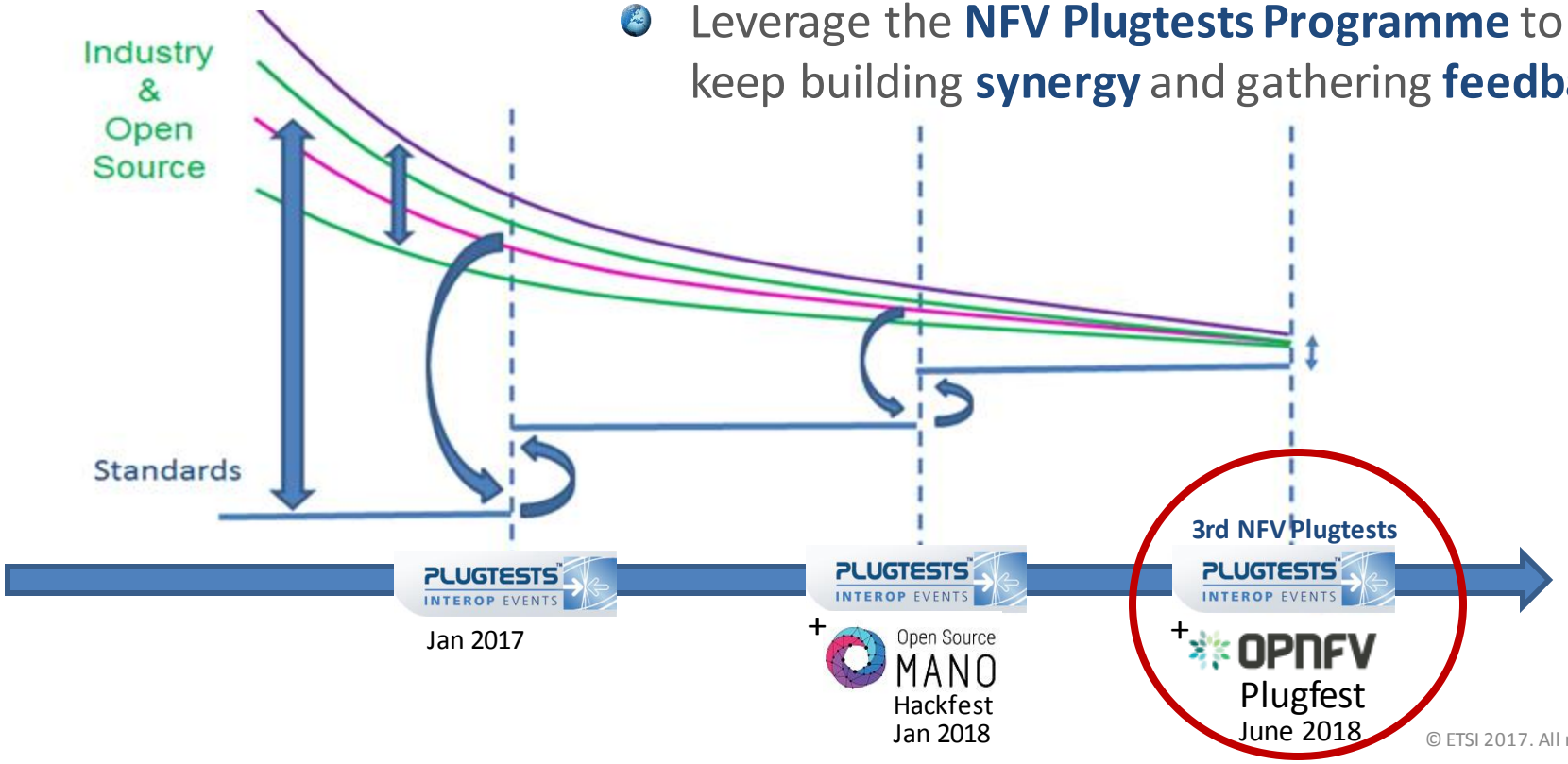
LOOKING FORWARD

- Leverage the **NFV Plugtests Programme** to keep building **synergy** and gathering **feedback**



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CONTACT DETAILS

Silvia Almagia

Centre for Testing and Interoperability (CTI), ETSI

silvia.almagia@etsi.org

http://www.etsi.org/nfvplugtests2

Thank you!

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