The Standards People

ETSI TC INT (Core Network and Interoperability Testing)
Brief Overview about the Group, and Summary of Testbeds related Activities

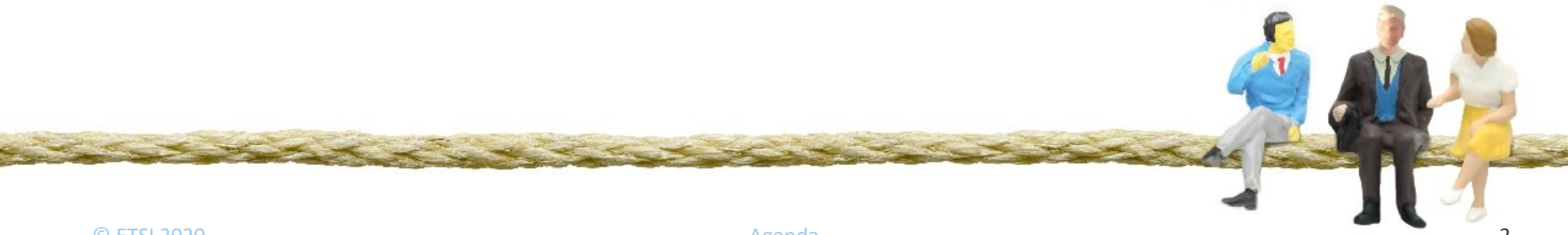
Presented by: **Giulio Maggiore**
ETSI TC INT Chair

For: **ITU-T ETSI IEEE Joint SDOs Brainstorming Workshop on Testbeds Federations for 5G & Beyond: Interoperability, Standardization, Reference Model & APIs**

15th & 16th March 2021

AGENDA

- ETSI and TC INT (Core Network and Interoperability Testing) Introduction
- Main TC INT Activity Areas
- Summary of Testbeds related Activities
- Conclusions



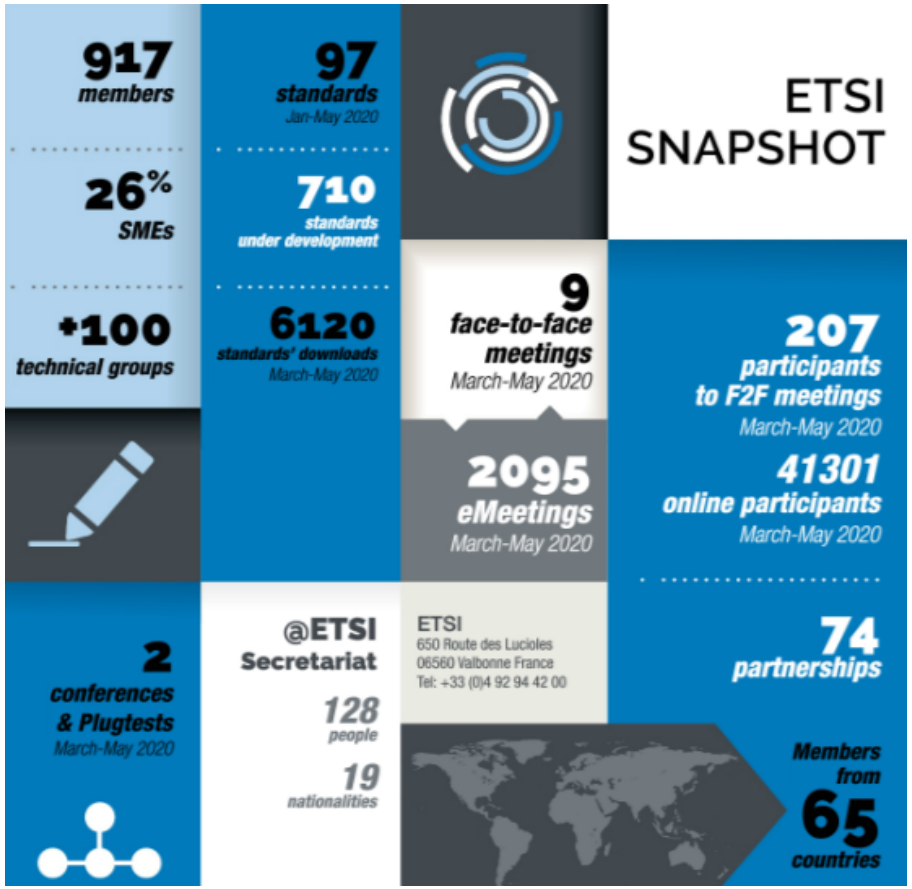
About ETSI - Bringing people together…

- Independent, non-profit standards organization
- Officially recognized by the European Union to support EU regulation
- **30** year track record of technical excellence in the ICT sector
- Founding Partner Member of both **3GPP** and **oneM2M**

- Over **910** members from **65** countries over **5** continents
- Diverse community: private companies, research and academia, governments, public bodies, societal stakeholders

- Over **49 000** standards published to date, **2 000+** published per year
- **17.5 million** downloads per year, All specs. can be downloaded for free

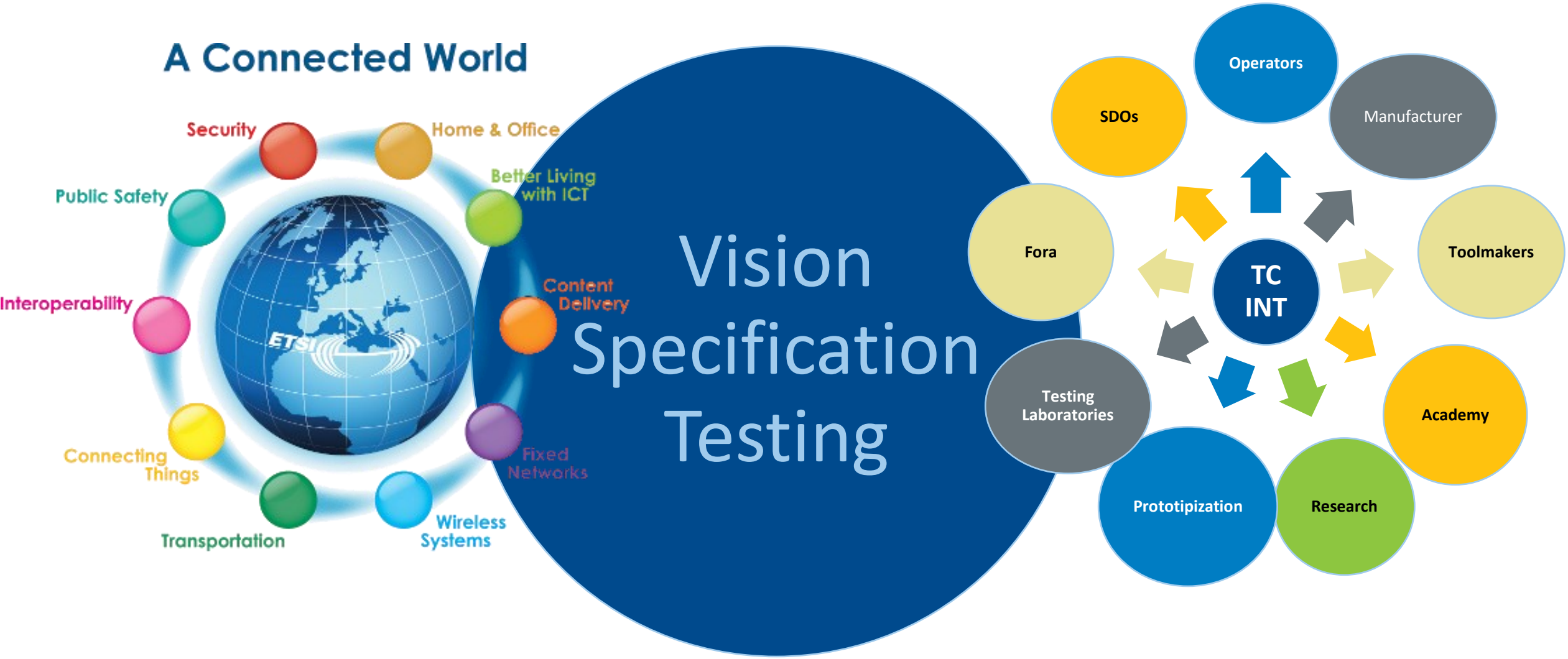
- Over **100** technical groups holding more than **4 000 (e)**meetings per year
- More than **50** conferences / workshops and interop events per year
- Vast majority of meetings and event are now electronic/virtual



Taken from the July edition of the ETSI Enjoy! magazine
https://www.etsi.org/newsroom/magazine

https://www.etsi.org/

TC INT Ecosystems within ETSI World

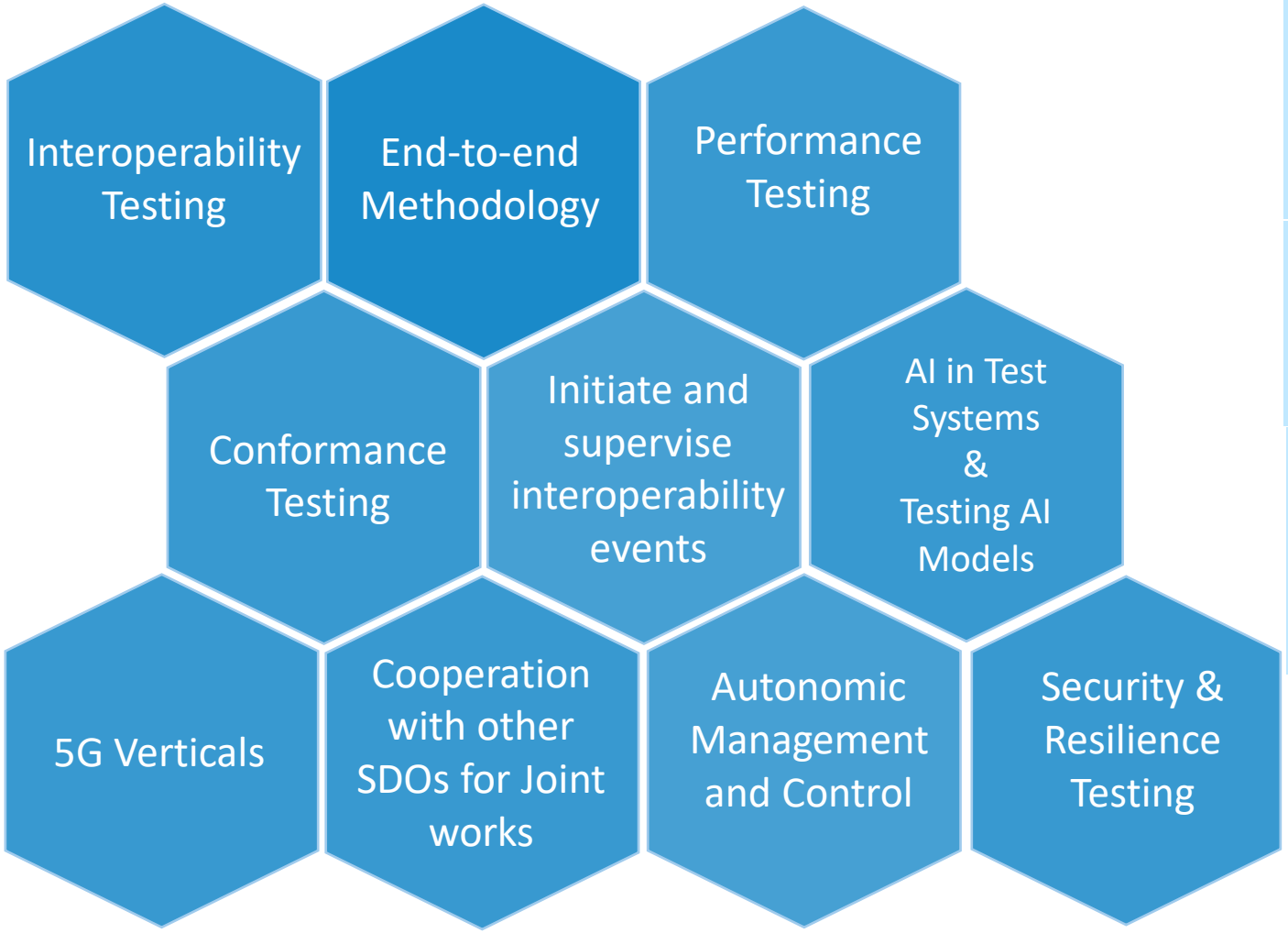


ETSI TC INT (Core Network and Interoperability Testing)

Test Specification for Interoperability verification at the NNI Interfaces

Test Specification for Conformance verification at the NNI Interfaces

Joint work item and endorsement of test specifications from/to other SDOs e.g. ITU-T SG11

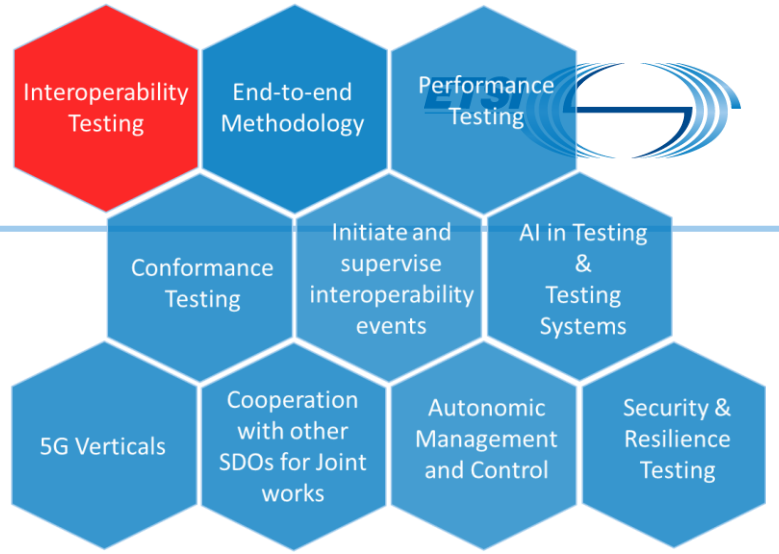


Using End to End Methodology

Initiate and Coordinate interoperability Events with GSMA and other Fora

Autonomic Management and Control Intelligence for Self-Managed Fixed & Mobile Integrated Networks

Interoperability

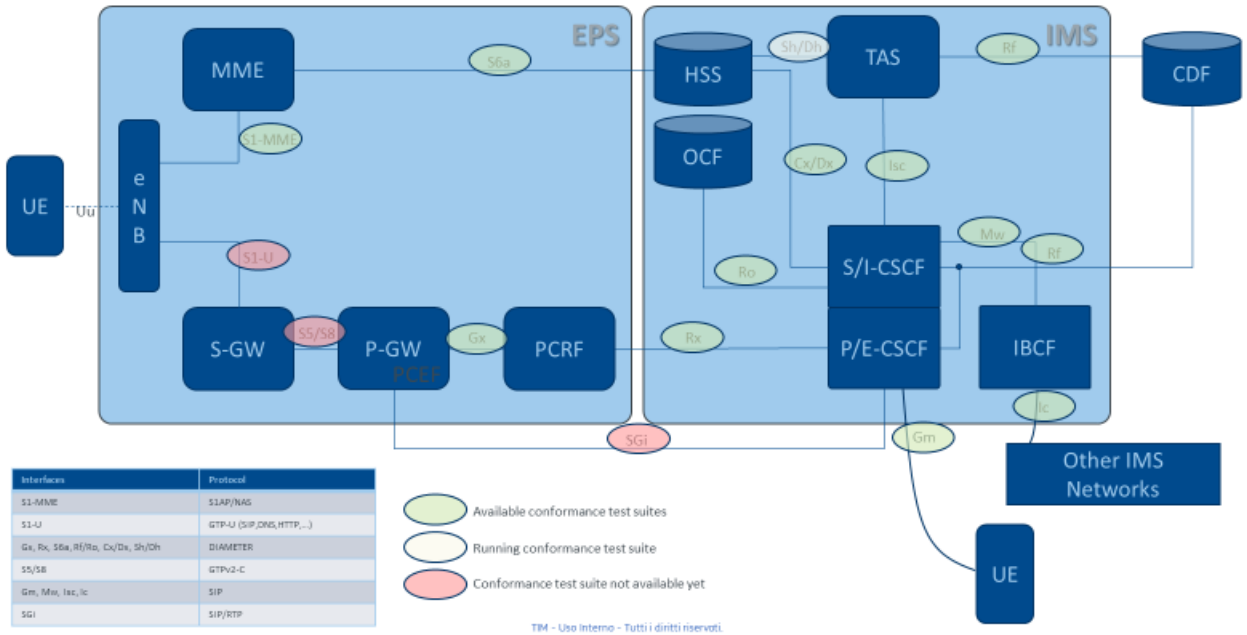


- Core Network and Interoperability Testing (INT); VoLTE/ViLTE interoperability test description over 4G/early 5G in physical/virtual environments; (3GPP™ Release 15);

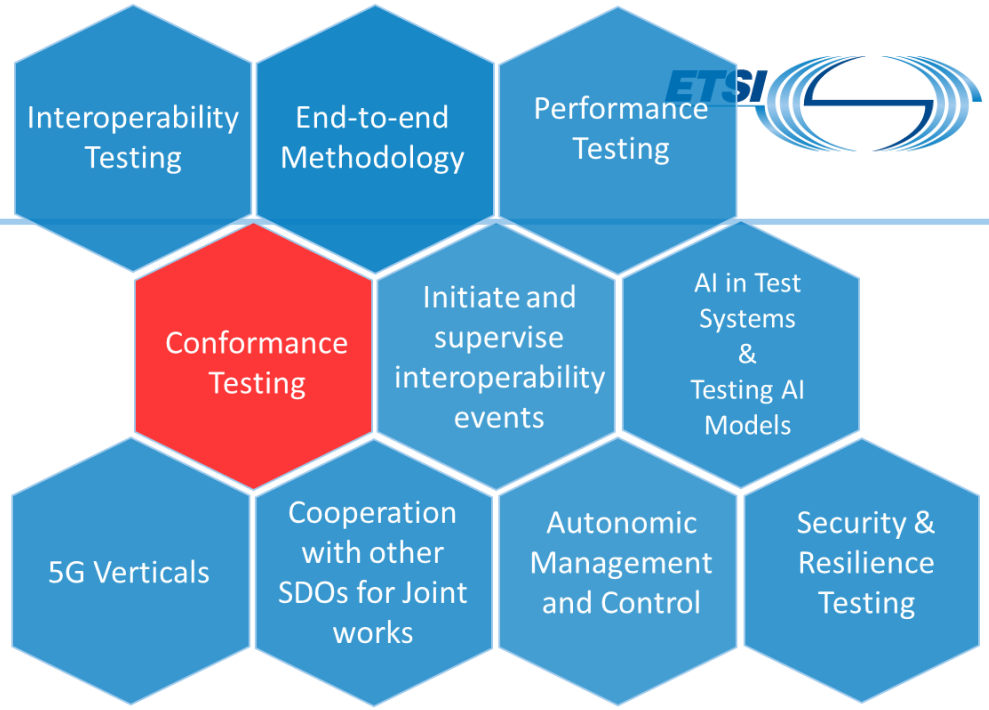
ETSI TS 103 653-2 V2.0.1 (2021-03)

**Core Network and Interoperability Testing (INT);
VoLTE/ViLTE interoperability test description over
4G/early 5G in physical/virtual environments;
(3GPP™ Release 15);
Part 2: Test Descriptions for VoLTE/ViLTE interoperability**

VoLTE/ViLTE architecture with interfaces

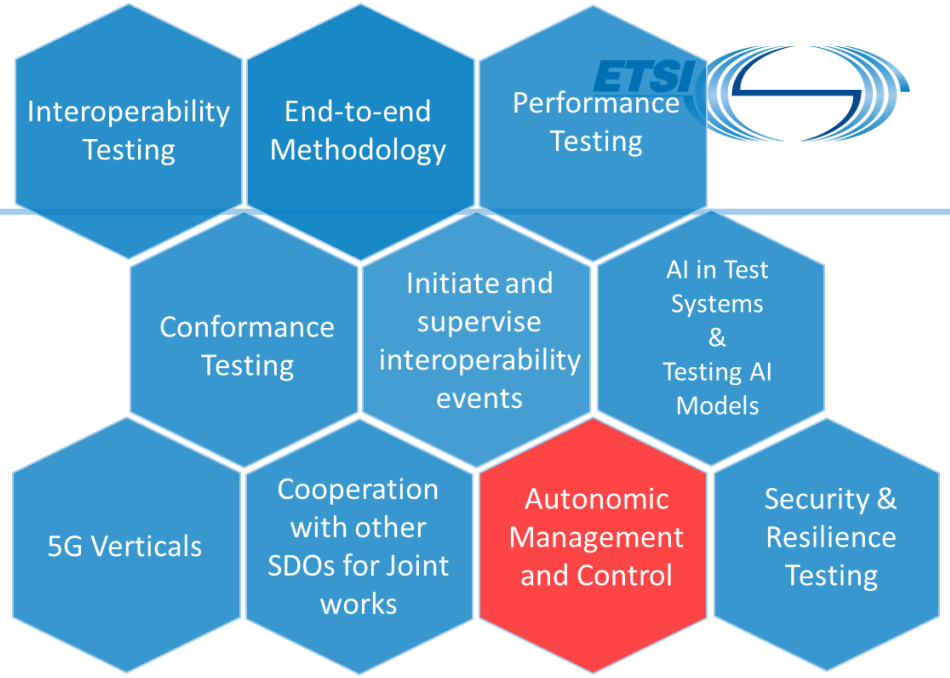


Conformance



- **Rx** TS 101 580 part 1, 2, 3 + validation
- **Gx** TS 101 606 part 1, 2, 3 + validation
- **S6a** TS 103 261 part 1, 2, 3 + validation
- **S9** TS 103 262 part 1, 2, 3 + validation
- **Cx/Dx** TS 103 289 part 1, 2, 3 + validation
- **Rf/Ro** TS 103 374 part 1, 2, 3 + validation
- **Sh/Dh** TS 103 571 part 1, 2, 3 + validation

Autonomic Management and Control



ETSI TS 103 195-2 V1.1.1 (2018-05)

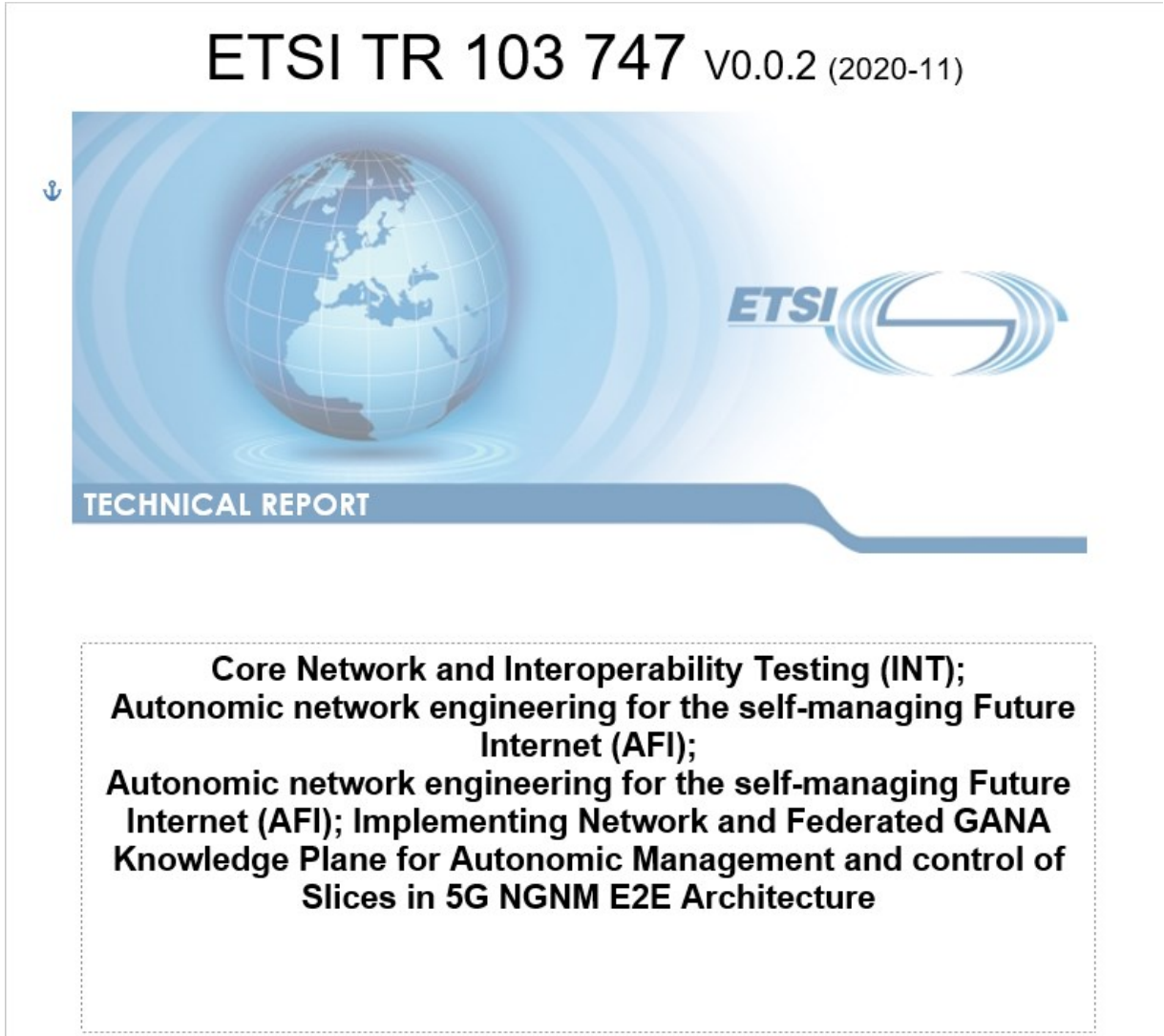
Autonomic network engineering for the self-managing Future Internet (AFI); Generic Autonomic Network Architecture; Part 2: An Architectural Reference Model for Autonomic Networking, Cognitive Networking and Self-Management

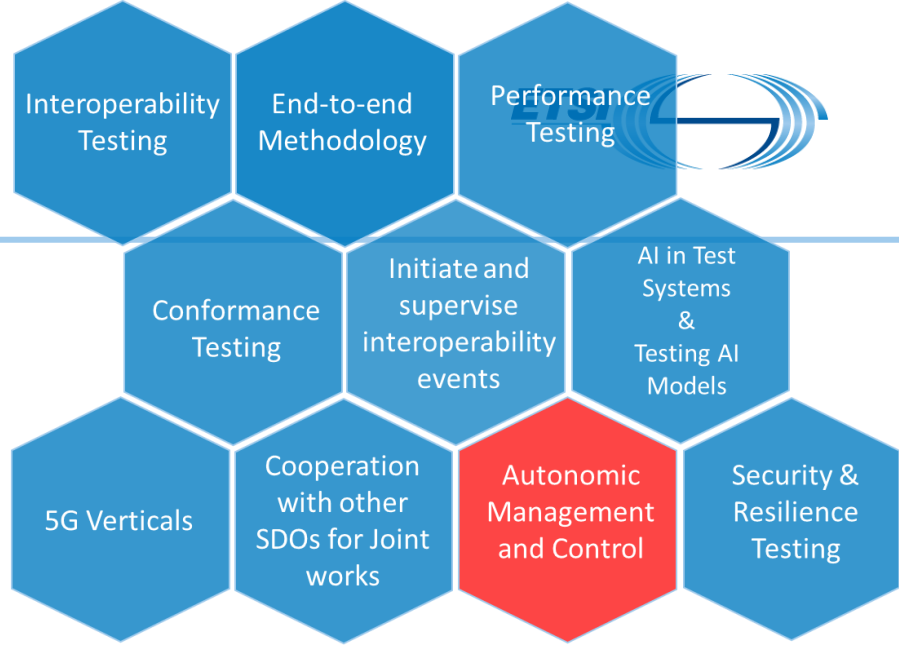
ETSI TR 103 626 V1.1.1 (2020-02)

Autonomic network engineering for the self-managing Future Internet (AFI); An Instantiation and Implementation of the Generic Autonomic Network Architecture (GANA) Model onto Heterogeneous Wireless Access Technologies using Cognitive Algorithms

TC INT AFI Proof Of Concept Program

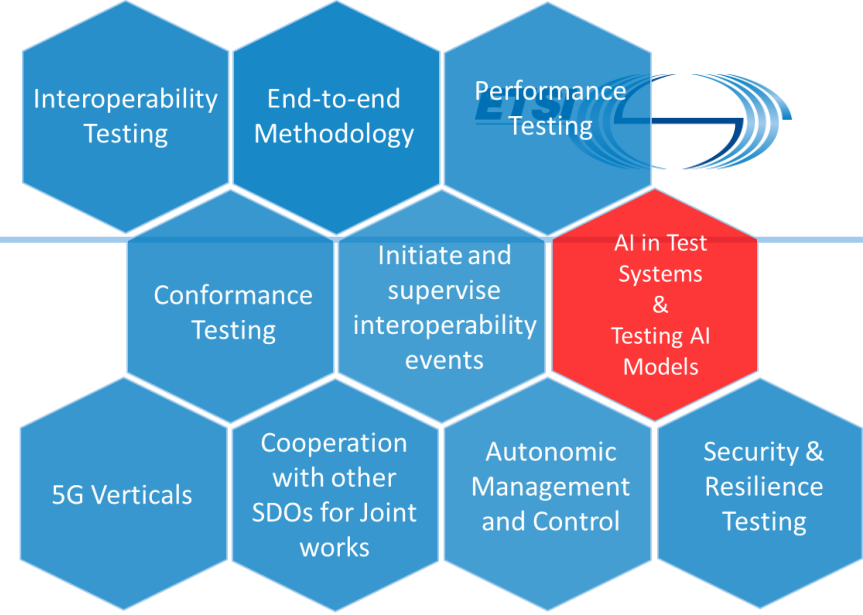
TC INT AFI Deliverable

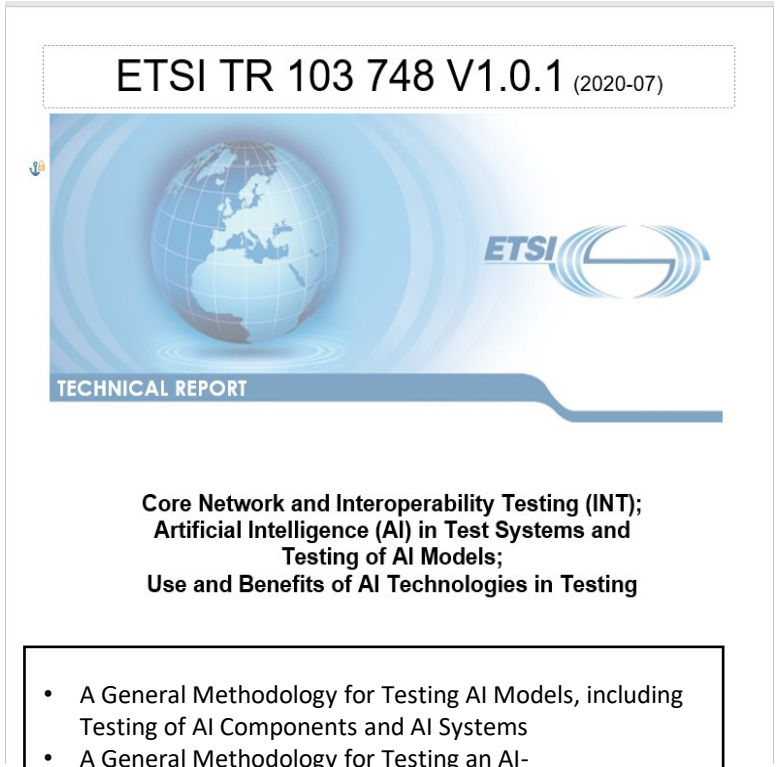




- Mapping of architectural components developed in the EU Slicenet Project
- SliceNet Architecture
- Impact of MEC, Network Slicing and Hardware Acceleration to the SliceNet Concepts and Principles
- Instantiation of GANA Functional Blocks by Mapping SliceNet architecture components to GANA for POC applications

AI in Test Systems & Testing AI Models





- Joint work with ETSI TC MTS (Methods for Testing & Specification)
- Benefits that AI/ML brings to stakeholders in testing
- AI/ML technologies applied to software testing
- AI/ML empowered test technologies applied in test phases
- Application cases of AI/ML in testing
- Landscape on the use of AI in testing

- A General Methodology for Testing AI Models, including Testing of AI Components and AI Systems
- A General Methodology for Testing an AI-embedding(powered) Network or AI Systems that collectively form a Network
- Definitions of Quality Metrics of specific classes of AI Models, Components and Systems
- Generic Test Framework for Testing AI Models, Components and Systems during their lifecycles
- Testing Offline AI Models which need a programmable configurable (re)-Training process in a CSPs' Training environment
- Testing Online AI Models that are directly deployed in CSP's Production Environment and are continuously exposed to real and new data

1. ***Use and Benefits of AI technologies in Testing (Joint Work with TC MTS):***
   https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=59455

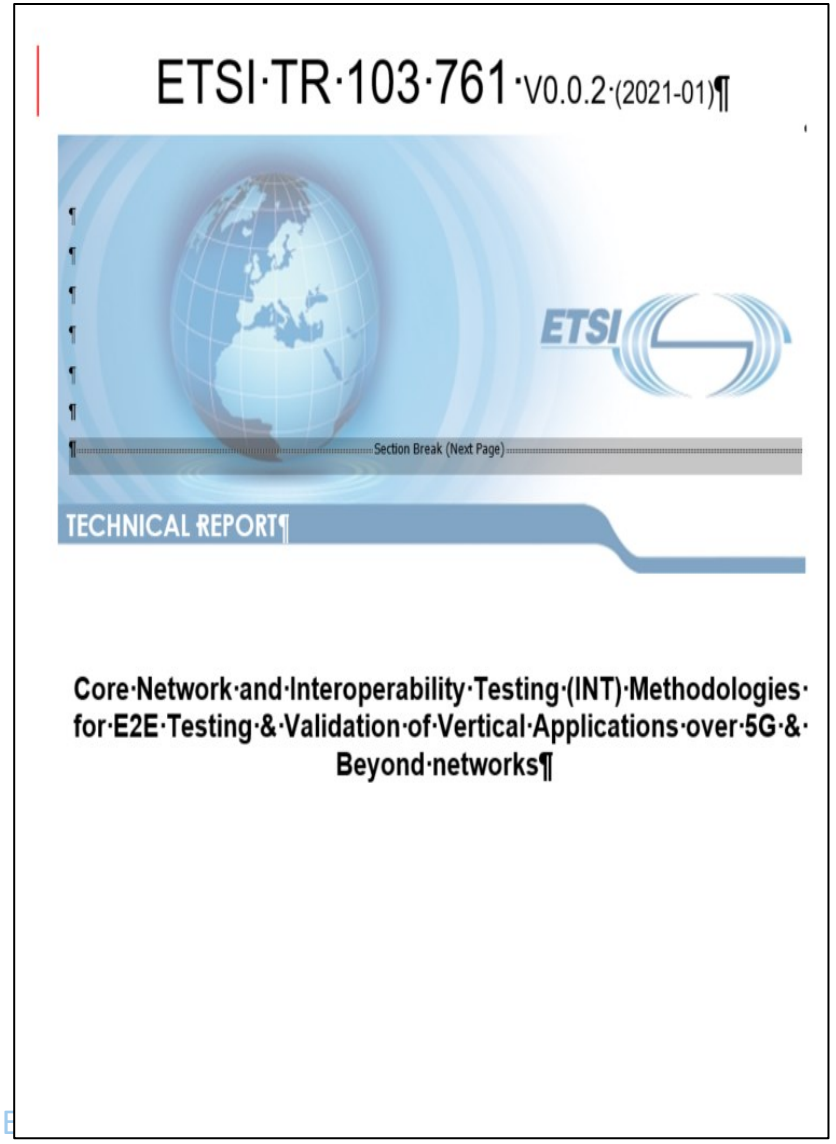
2. ***Testing AI Models, Components, Systems, Metrics for Measurements and Assessments in Testing and Certification of AI (Joint Work with TC MTS):***
   https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=59456

3. ***Test Requirements and Approach for E2E Federated Testbeds, with an Example Use Case of Testing Federated Autonomic Management and Control (AMC) operations (e.g. by GANA) Components Within and Across Multiple 5G Network Operators:*** *https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=59577*

4. ***Test & Validation Specifications applicable to the widest range possible of vertical applications created for leveraging the potential of 5G & Beyond networks:***
   https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=59576

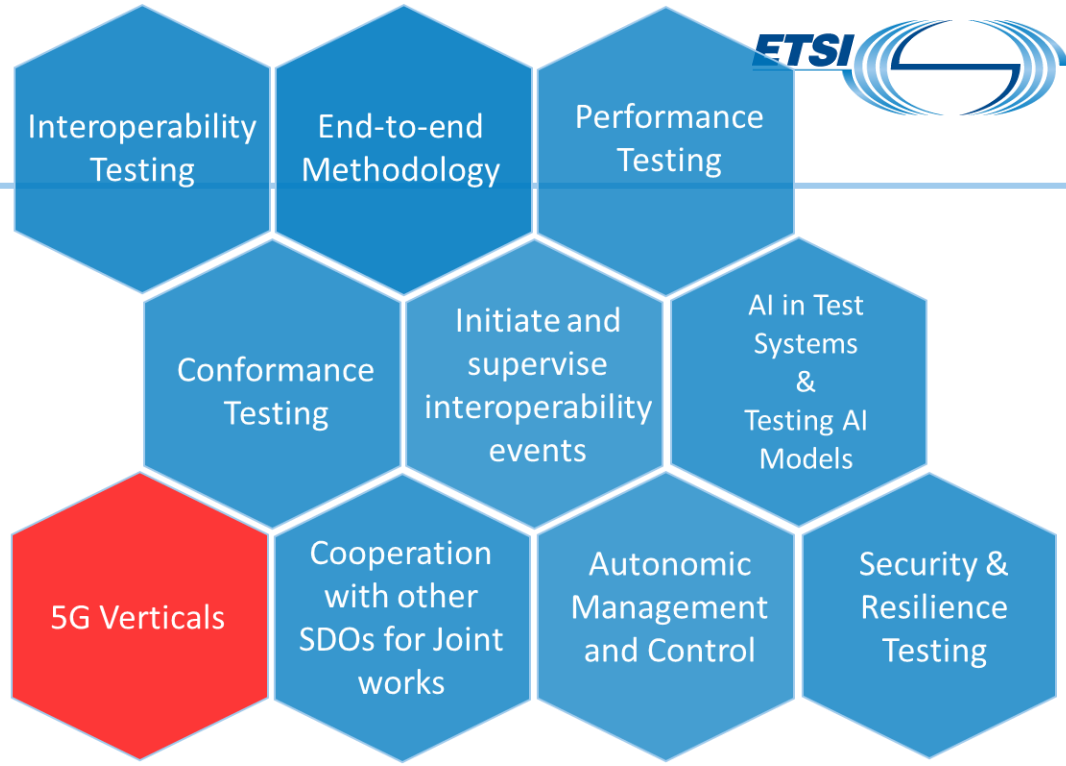
5. ***Methodologies for E2E Testing & Validation of Vertical Applications over 5G & Beyond networks:***
   https://portal.etsi.org/webapp/WorkProgram/Report_WorkItem.asp?WKI_ID=59575

5G Verticals


ETSI TR 103 761 V0.0.2 (2021-01)

TECHNICAL REPORT

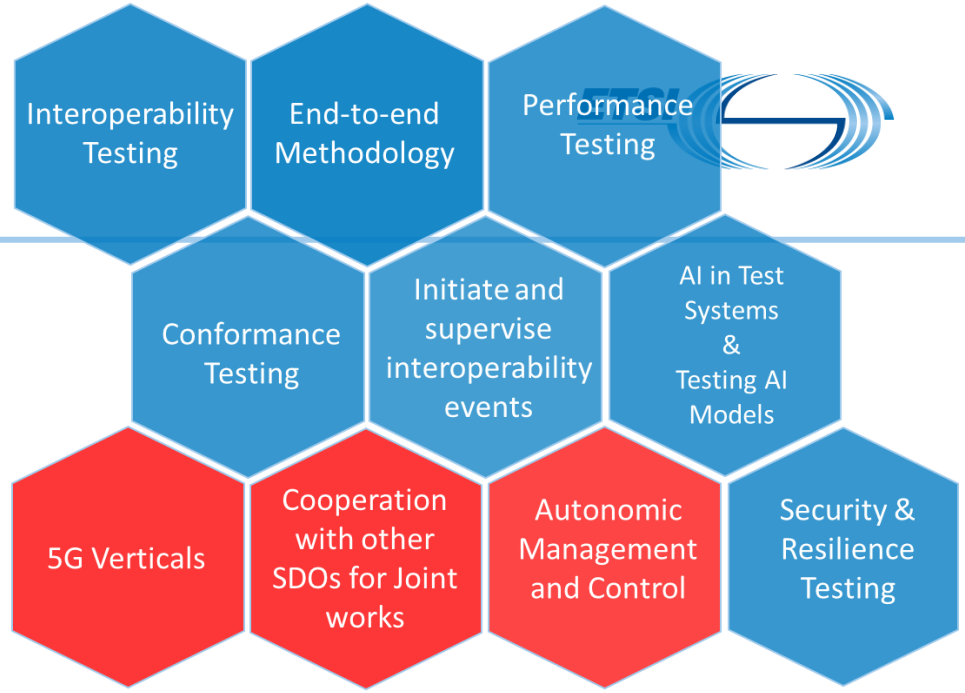
Core Network and Interoperability Testing (INT) Methodologies for E2E Testing & Validation of Vertical Applications over 5G & Beyond networks

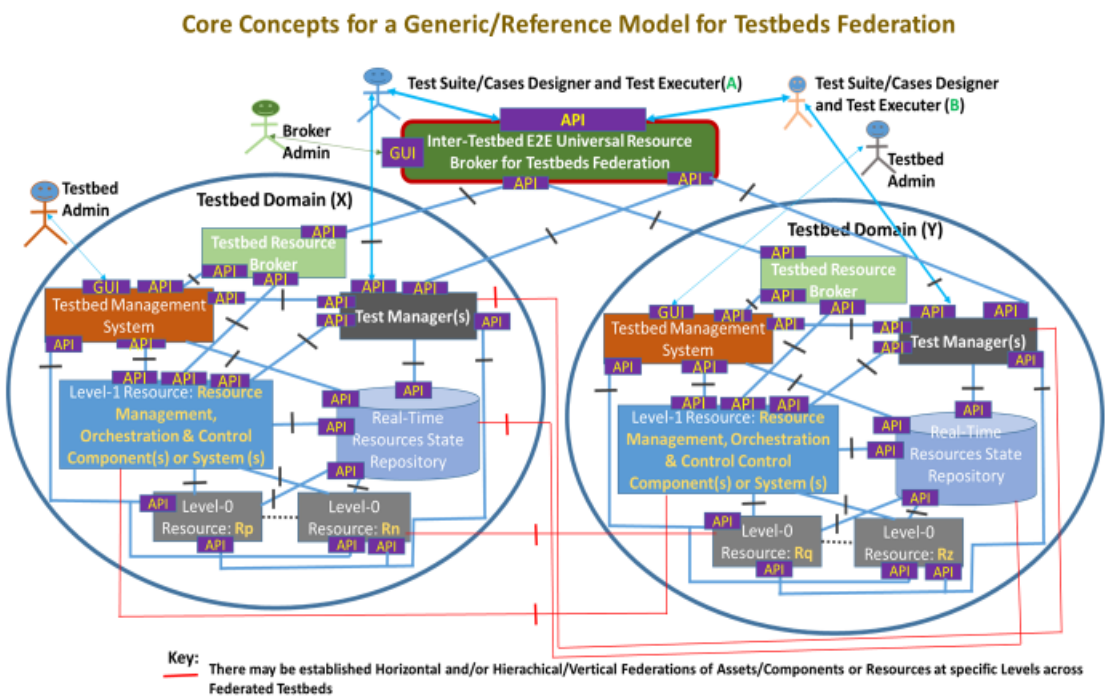


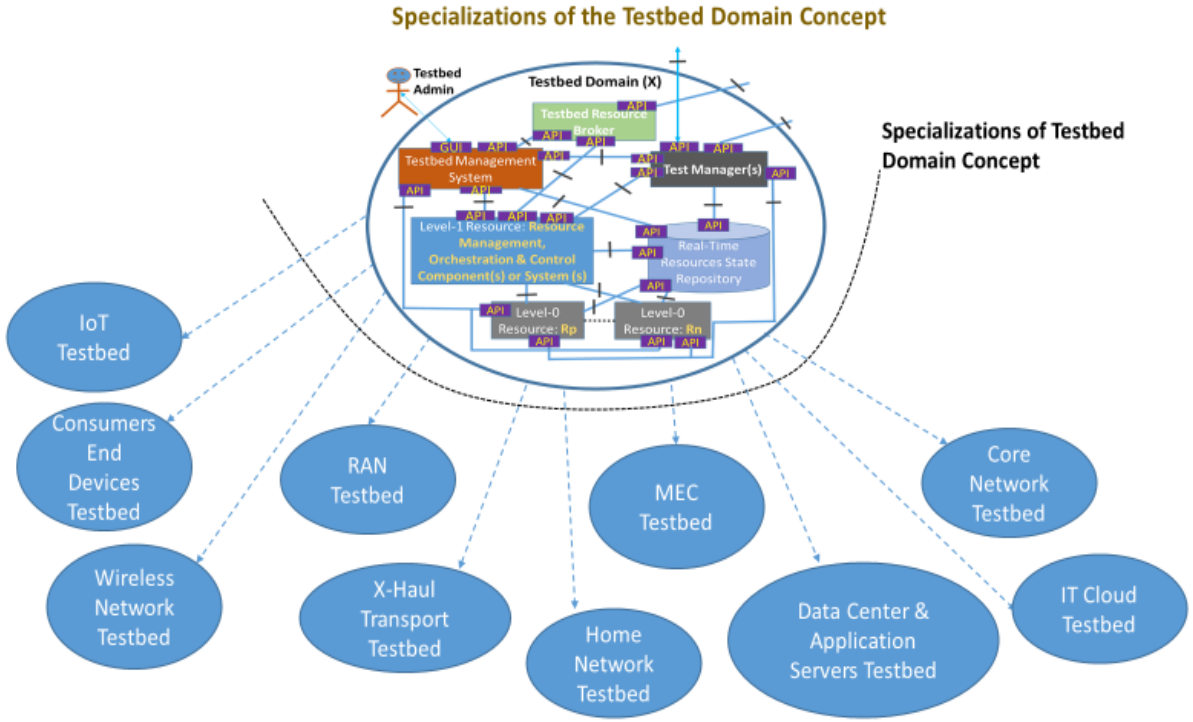
- Core Network and Interoperability Testing (INT) Methodologies for E2E Testing & Validation of Vertical Applications over 5G & Beyond networks
- Contributions coming from 5G EVE EU Project

Description of Test Requirements and Approach for E2E Federated Testbeds;

TR 103 763 Core Network and Interoperability Testing (INT); Description of Test Requirements and Approach for E2E Federated Testbeds;







Questions?

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