

ACROSS

Automated zero-touch cross-layer provisioning
framework for 5G and beyond vertical services

SNS Lunchtime webinars

Monday - 20 February, 2023 | Online

ACROSS project - Introduction

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Overview

- **Project Name:** **ACROSS** - Automated zero-touch cross-layer provisioning framework for 5G and beyond vertical services

- **Project website:** across-he.eu.

- **Stream:** A-01-07

- **Members:**

NOVA



NOKIA



- **Key objective:**

ACROSS develops a secure E2E network and service management platform that employs vertical and horizontal zero-touch mechanisms, enabling multi-objective service management optimizations in the presence of trade-offs between performance, energy consumption, and cost.

Motivation

Edge to core continuum

Cloud-native services

CPU+GPU processing

of events ++

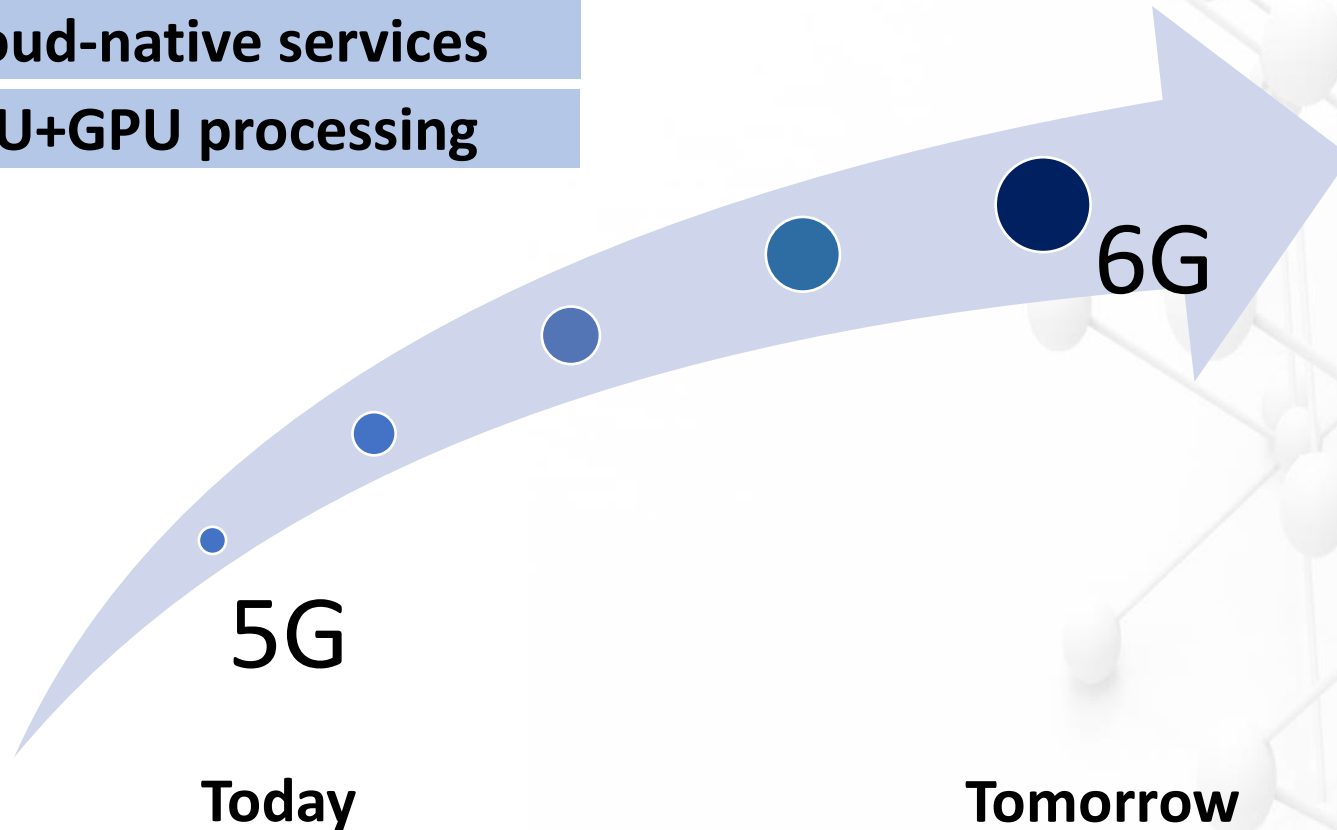
of devices ++

Data volume ++

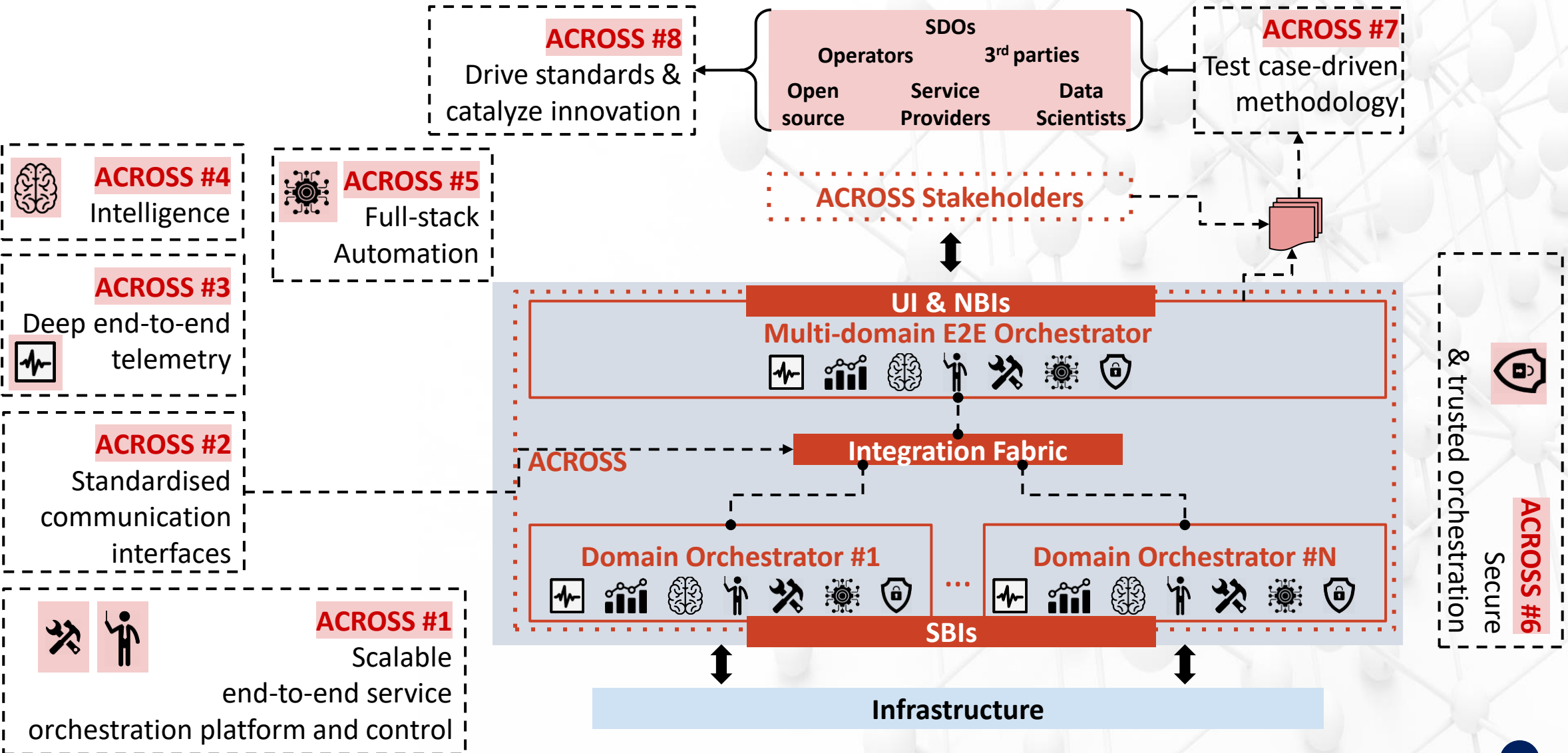
In-network proc. (FPGAs)

AI breakthrough

Cross-layer automation



Concept



Key development objective

- ACROSS project's developments...
 - ... provide an **ultra-scalable service orchestration stratum**, built as an ensemble of
 - a highly-distributed **grid of domain orchestration** instances
 - managed by a **multi-domain cloud-native service orchestrator**, able to ...
 - ... manage **multi-X {domain, technology, vendor, tenant} infrastructures** spanning across geo-distributed edge-to-core deployments, with...
 - ... increased **security and trust** over the underlying set of devices and ad-hoc data sources, while
 - ... jointly exploiting the **data plane programmability**, and the exciting momentum of **AI** to greatly outperform and outsmart existing service orchestration loops.

Key technologies investigated

- Ultra-scalable cross-domain service deployment and orchestration through standardised and vendor-agnostic **cross-domain integration fabric**
- Deep **end-to-end telemetry** on open programmable infrastructures, from both RAN-to-Core infrastructure and the service layer
- Real-time analytics and AI for next-generation end-to-end orchestration, exploiting **complex graph relationships** and **AI for TE** principles
- Full-Stack **cross-domain zero-touch provisioning (ZTP)**, enabling both Vertical (App-to-Hardware) and Horizontal (RAN-to-Core) automation
- Secure & trusted orchestration mechanisms in fields of TEE, efficient and secure enclave management, improved sec-VNF placement

Planned standardization activities

Alliance with standards and tangible beyond state-of-the-art contributions

Per-module innovation plan

Aligns with

Contributes to



ETSI ZSM, ETSI TFS, P4.org, IETF OAM

ETSI OSM, ETSI TFS, P4.org/Stratum, OpenSlice



ETSI ZSM

ETSI OSM or third-party platforms



ETSI ZSM, ETSI ENI, ETSI SAI

ETSI TFS, OpenSlice, open AI platforms



ETSI ZSM, ETSI NFV, TMF, 5GPPP

OpenSlice/ETSI OSM, commercial orchestrators



ETSI ZSM, ETSI NFV, TMF, 5GPPP

OpenSlice/ETSI OSM, commercial orchestrators



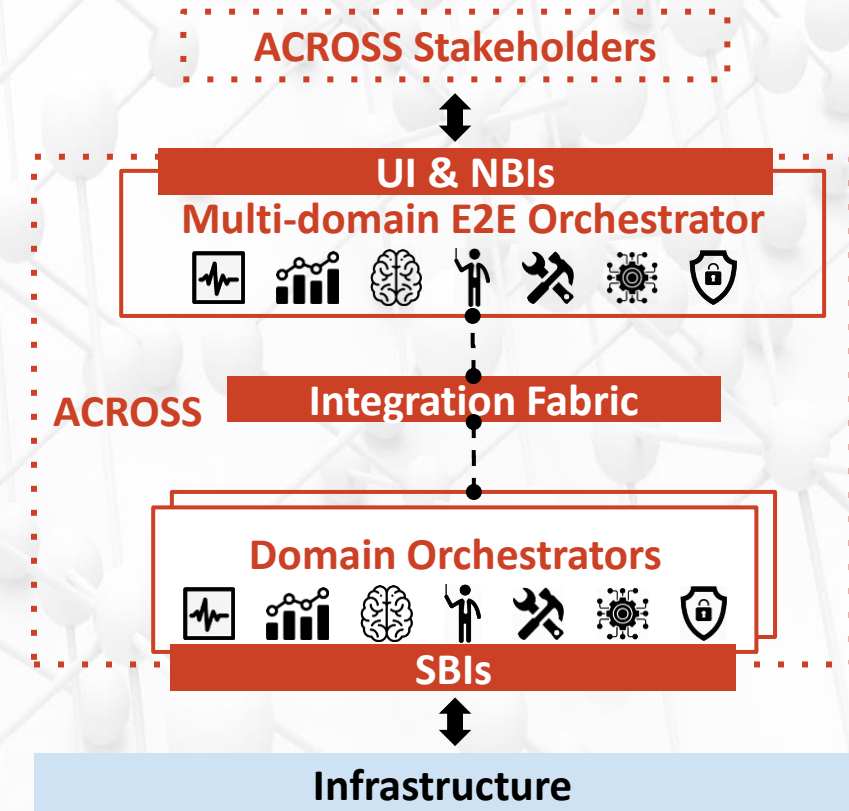
ETSI ZSM

OpenSlice/ETSI OSM, commercial orchestrators



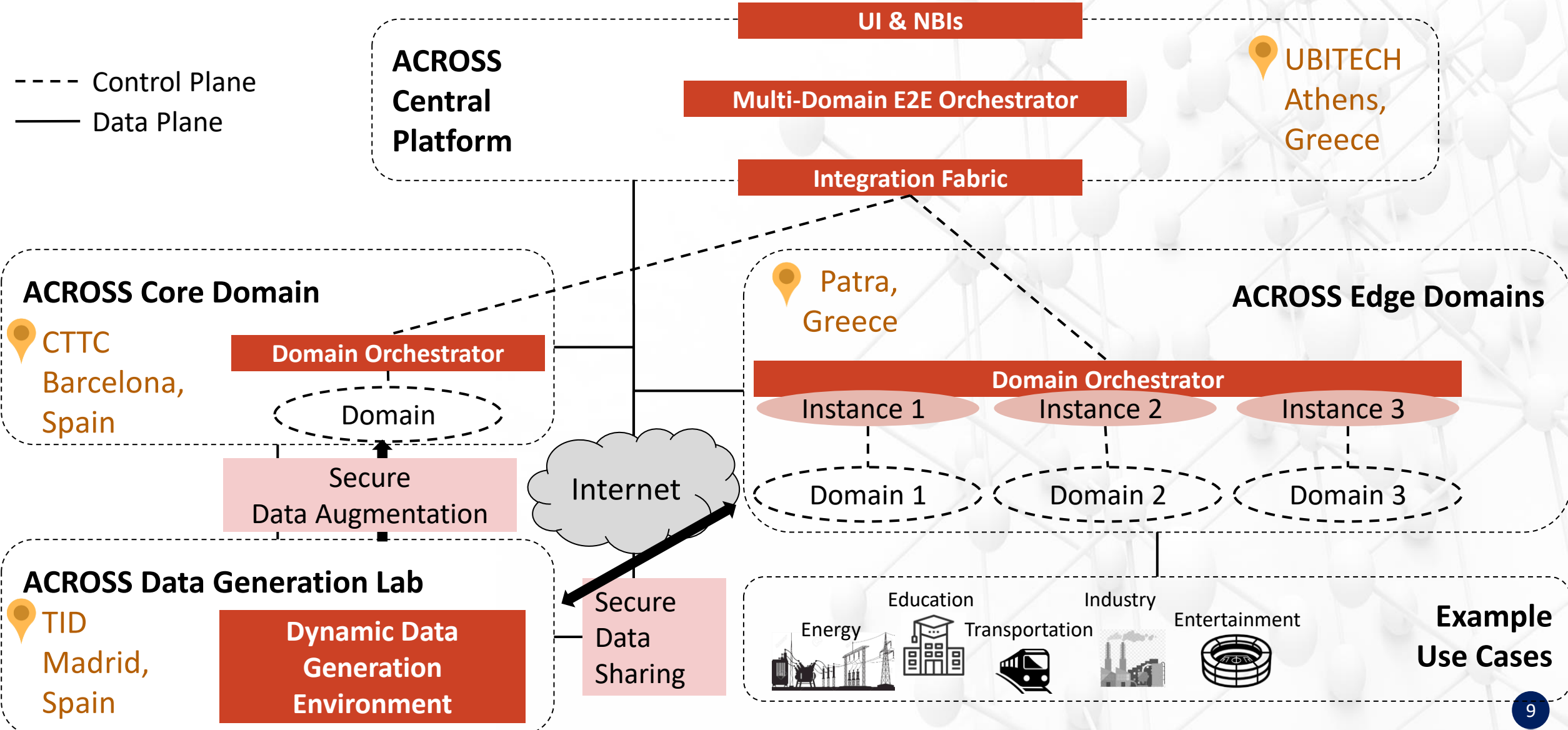
ETSI SAI, SNS Security WG

Open security and trust platforms

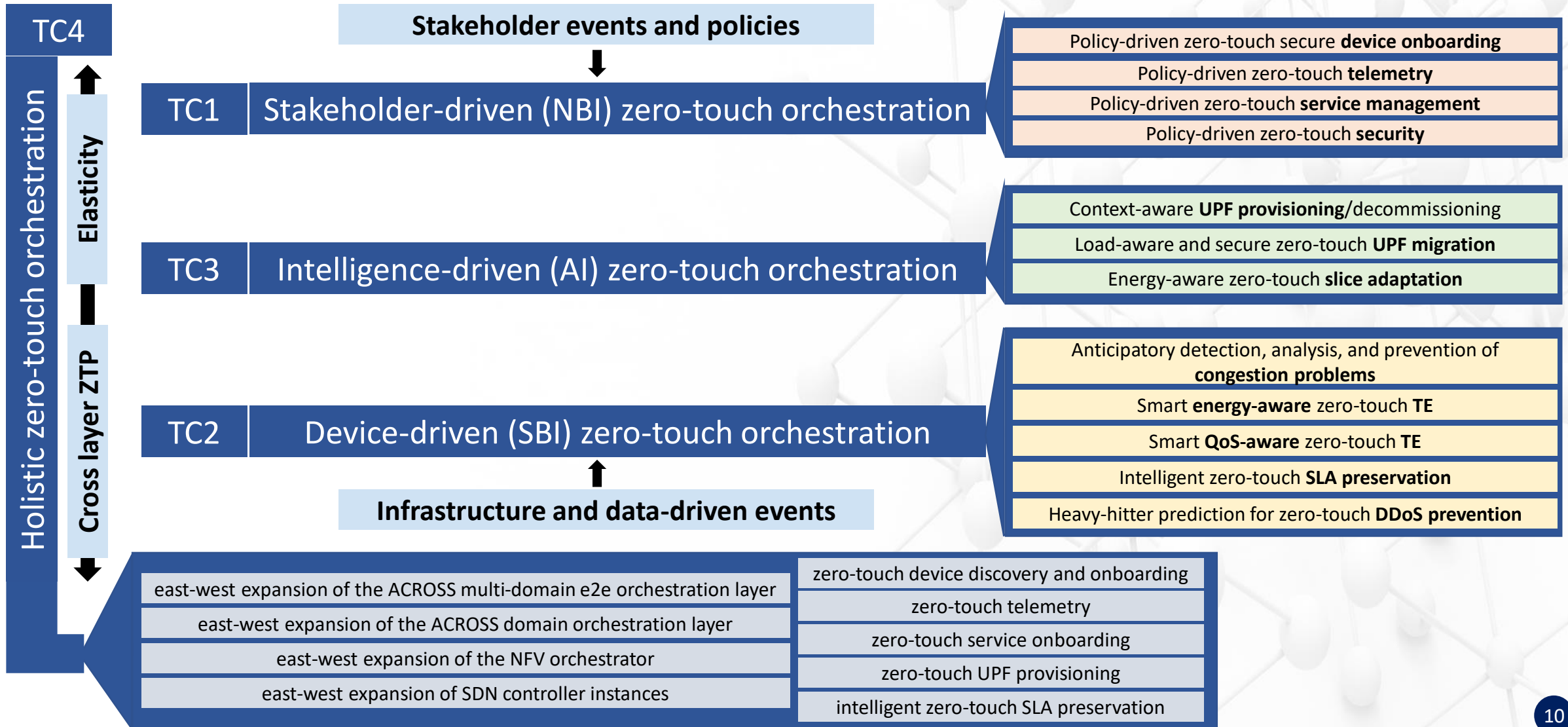


Experimentation facilities

--- Control Plane
 — Data Plane



Test cases overview



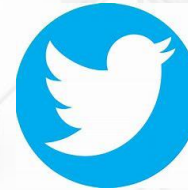
Thank you !



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