ACROSS

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

Press Release

ACROSS Project Advances 5G and Beyond with Final Multi-Domain Orchestration Platform and Zero-Touch Enablers

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The ACROSS project announces the successful publication of two of its final deliverables, **D3.2 "The ACROSS Multi-domain Orchestration Platform - Final Release"** and **D4.2 "The ACROSS Zero touch, Intelligent and Secure Orchestration enablers - Final release."** These releases mark a significant milestone in developing an automated, zero-touch, cross-layer provisioning framework for 5G and future vertical services, enhancing scalability, efficiency, and security in telecommunications networks.

The ACROSS project's final releases detail a comprehensive suite of advancements across orchestration, artificial intelligence, automation, and security.

- **Advanced Multi-Domain Orchestration** The final release of the ACROSS Multi-Domain Orchestration Platform (D3.2) introduces the ACROSS Multi-Domain Service Orchestrator (AMSO), Maestro, and the ACROSS Cross-Domain Orchestrator (ACDO), OpenSlice. These orchestrators provide end-to-end service lifecycle management and domain-level resource and service orchestration, respectively. A key innovation is the Zero-Trust Connectivity (ZTC) Fabric, which ensures secure inter-domain integration by encrypting all control and data flows, aligning with ETSI ZSM principles. The platform also delivers a comprehensive portfolio of services, including Kubernetes-as-a-Service, robust storage solutions, advanced communication tools, 5G network functions, deep telemetry capabilities, and end-to-end analytics pipelines.
- **Intelligent & Secure Zero-Touch Enablers** Deliverable D4.2 focuses on the final advancements in zero-touch automation, intelligence, and security. It details the Network Digital Twin services, which create realistic emulation environments for generating synthetic data crucial for AI model training. The Artificial Intelligence services encompass AI Training, AI Inference, AI Repository, and AI Data Aggregator, supporting proactive automation tasks. Zero-Touch Automation services provide recommendations to orchestrators for automated changes in service deployment based on user-defined Service Level Agreements (SLAs). Furthermore, the Security and Trust services introduce innovative mechanisms like Device Attestation, Secure Container Migration, and software-defined security solutions for detecting and mitigating Denial-of-Service (DoS) and Distributed Denial-of-Service (DDoS) attacks.

Commitment to Open Source

The ACROSS project is deeply committed to fostering innovation within the open-source community. Many of the components developed and validated within these deliverables are slated for open-source release, contributing to the advancement of 5G and Beyond 5G (B5G) networks.

Notable open-source contributions include:

- **Network Digital Twin Services:** Datasets related to traffic generation for test cases are publicly available via Zenodo.
- **AI Services:** AI models and components for various test cases are planned for release.
- **Automation Services:** The full suite of Automation Services will be open-sourced.
- **Security & Trust Sidecar:** NBI connectors for ETSI TeraFlowSDN to leverage network topology and transport network slice details, as well as management of Access Control Lists (ACLs), are planned for release in a public GitLab/GitHub repository.
- **DDoS Detection and Mitigation:** These services are also planned for release in a public GitLab/GitHub repository.
- **Orchestration Components:** The ACROSS Portal, AMSO and ACDO are also being made available as open-source projects.
- **Platform Services:** Components such as Block, Object, and File Storage, Data Ingestion and Search, Message Queue and Event Bus, 5G-as-a-Service, Compute Telemetry, SDN Telemetry, Intelligent Telemetry, Data Aggregator, and Analytics components (Model Repository, Training, Inference, Data Drift Detector) are contributed to open-source projects or will be released.

For more detailed information on these components and their open-source availability, please visit the official ACROSS project website: ACROSS Open Source

About ACROSS

ACROSS is a HORIZON-JU-SNS-2022 funded research project that designs and implements an end-to-end service deployment and management platform for next generation networks and services, aiming at unprecedented levels of automation, performance, scalability, and energy efficiency. The platform is further enhanced with a) ***deep end-to-end telemetry*** to unlock visibility of the intertwined network and compute system states, b) ***AI-driven intelligence*** that leverages both the vast number of events originating from the dense IoT ecosystem and detailed monitoring data originating from the ACROSS telemetry sub-system, to generate new

insights, c) ***full-stack cross-domain zero-touch provisioning*** via programmable "hooks" that exploit events originating from raw telemetry and AI processed events, and d) ***secure and trusted orchestration mechanisms*** for trusted computing technologies over large and heterogeneous cloud-edge deployments, as well as orchestration and monitoring of the security VNF.

Learn more and be part of the ACROSS community!

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