5G-CDD – in a nutshell

5G Connect Danube Delta (5G-CDD) is an initiative led by Orange Romania that will cover 22+ remote localities in the Danube Delta (Tulcea county) with standalone (SA) and non-stand-alone (NSA) 5G coverage across roughly 62 km^2. By upgrading existing radio sites, building three new ones and rolling out new fiber back-haul, the project delivers gigabit-class mobile broadband and a low-latency edge-cloud platform where tele-medicine, remote-learning, digital-tourism and real-time environmental-monitoring applications will run.

Build Approach & EDGE's Role

RAN footprint
- 22 sites (19 upgrades + 3 new) with Ericsson NR radios.
- Bands: n78 (3.5 GHz, 100 MHz) for capacity; n28 (700 MHz) + n21 (2100 MHz) for extended coverage.

Core modes
- NSA (Option 3x) anchored to existing 4G EPC
- SA (Option 2) via Nokia 5G core; enables 3GPP Rel. 16 slicing.
- Private slice for project beneficiaries.

Edge/MEC
- Local site: 4 servers + L2/L3; orchestrated with OpenStack/K8s.
- Local traffic break-out with remote UPF → <10 ms latency for e-health, e-learning, tourism, video analytics.

How will the project progress?

- 10/24-03/25 – sites consolidation authorizations procurement
- 03/25-09/25 – initial 5G deployment and MW upgrades
- 09/25-03/26 – extended 5G deployment with TDD layer activation (increased capacity supported by FO)
- 03/26-09/26 – completion of Edge-Cloud infrastructure deployment and integration with the project use cases
- 09/26-03/27 – demonstration and training activities with the use cases' beneficiaries
- 03/27-09/27 – 5G implementation complete and final performance validation

More information

https://5glab.orange.ro/en/5g-connect-danube-delta-en/

Location

Use-Case Cluster

- eHealth
- Digital Education
- Slow Tourism
- Environmental Monitoring

Key Facts

Total EU grant: €2.585.966
Project duration: 10/24-10/27
Consortium:
- Orange Romania
- Ivan Patazichin - Mila 23 NGO
- NUST Politehnica Bucharest
- Virtual Board
- Telios Care
- Tulcea County Council

5G-CDD – Challenges in the EDGE/MEC context

Where are your biggest pain points or open questions right now?

- Inter-platform interoperability – harmonizing Kubernetes-based MEC stack with telco-grade ETSI MEC / 3GPP Edge APIs.
- Local-UPF & central-core coordination – seamless integration of the Local-UPF in the two deployment phases – 5G Lab private 5GC / Commercial 5GC.

What are you working on right now? What's coming up next?

- Deploying the local UPF + 4-node edge cluster and linking it to the 5G Lab private 5GC and selected SA radio sites.
- End-to-end slice demo for edge video analytics (environmental monitoring) demo (< 10 ms target).
- Integrating OpenStack and Kubernetes 5G-CDD worker nodes with the 5G Lab master deployments.

Requests to the Community?

- Exchange experience on container/network orchestration at far edge sites.
- Benchmarks or open-source tools for dynamic traffic steering between local and central UPFs / Edge deployments.
- Partners for joint Horizon Europe / DEP / CEF proposals on network architecture / Edge cybersecurity capacity building / 5G corridors.