PREDICT-6G

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The importance of predictability in 6G networks

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The vision

Building a deterministic 6G network

RELIABLE

Availability
Low packet
Failure resilient

TIME SENSITIVE

Bounded latency
Low jitter

PREDICTABLE

Use of AI to predict events, states, demands, resources
Autonomous proactive actions based on predictions

The mission

PREDICT-6G aims to **design, create and validate end-to-end (E2E) 6G solutions providing deterministic services over multiple interconnected domains and technologies** (incl. wired and wireless).

3 pillars

- To **extend the reliability and time sensitiveness features** of IEEE 802.11 and 3GPP networks, including APIs for the monitoring and control of such capabilities, enabling predictability.
- To **develop a multi-technology multi-domain Data-Plane** jointly with an AI-driven multi-stakeholder inter-domain Control-Plane (AICP)
- To **enhance the predictability** of the network through artificial intelligence, enabling the forecasting of the occupancy of network resources and the effect of accepting a new flow into the network

3 use cases

1. **Smart manufacturing**

2. **Multi-domain deterministic communications**

3. **Critical communications**

Innovations

Specific innovations

1. Cross-domain E2E deterministic service management automation
2. Emulate deterministic network capabilities on top of non-deterministic network segments
3. Predictability through Network Digital Twinning
4. User, resource, and function mobility under deterministic constraints
5. Highly configurable monitoring platform for multi-technology deterministic networks
6. Improvement of L2 deterministic capabilities of IEEE 802.11 and 3GPP
7. Data-plane integration of multiple deterministic and non-deterministic domains

Architecture overview

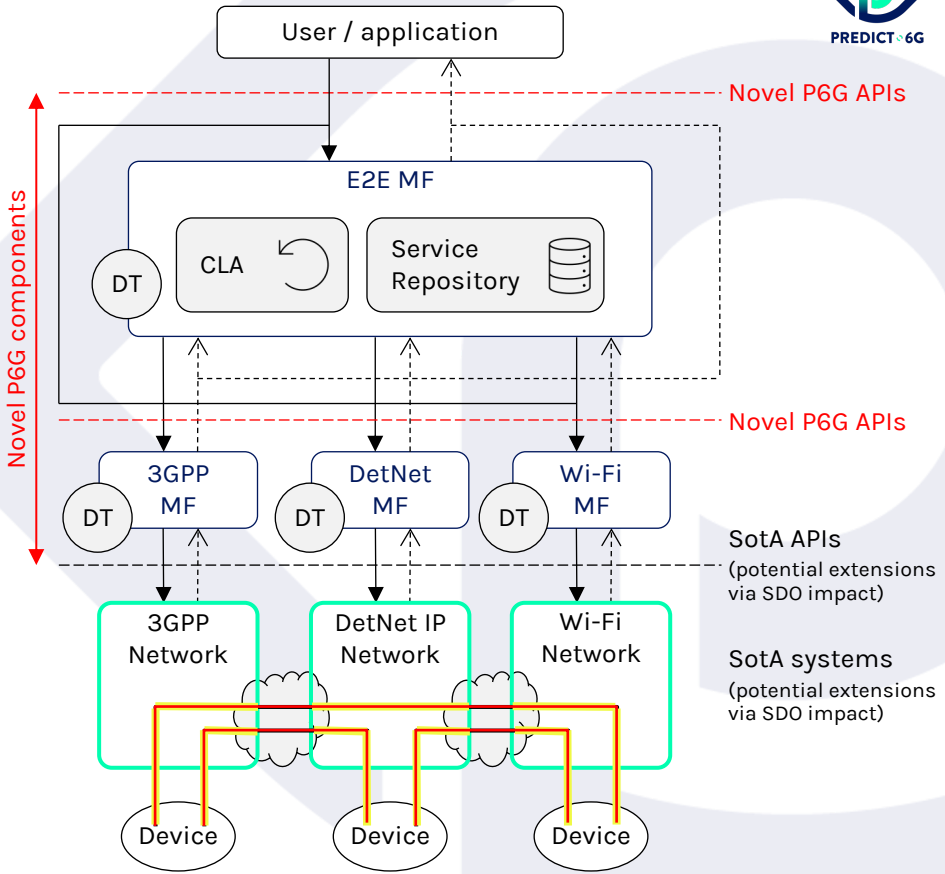
PREDICT-6G management scope

Networks (e.g., PM/CM)

Network services within one network (e.g., connectivity, det. SLA)

E2E services over multiple networks (e.g., between devices attached to different networks)

These are **Managed Entities (ME)** for the PREDICT-6G framework.

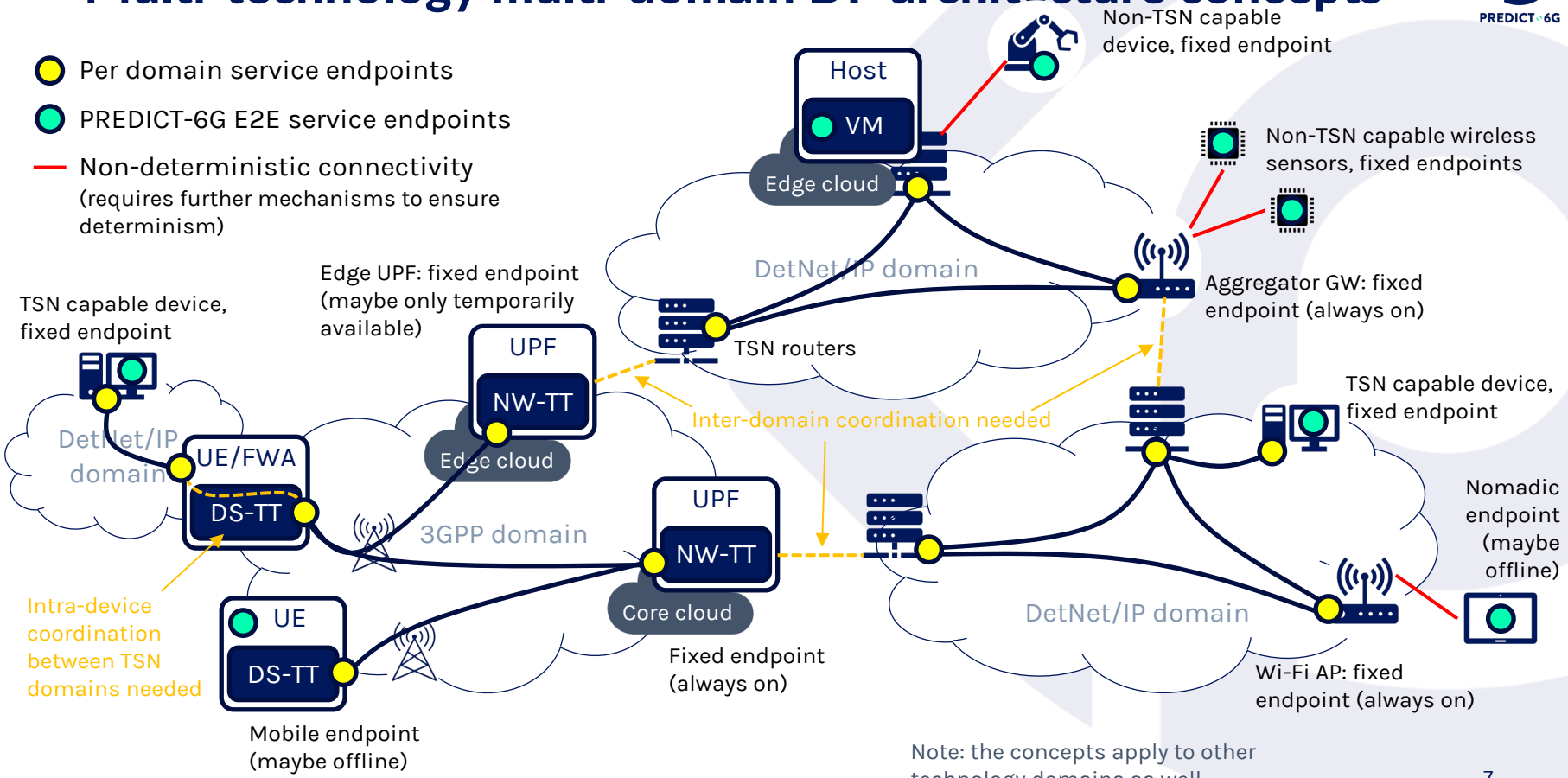


E2E deterministic service flow (MDP)

Request / configuration (AICP)

Measurement / status / insight (AICP)

Multi-technology multi-domain DP architecture concepts



Meet our team

17 partners from seven EU countries have joined forces

PREDICT-6G

Thank you!

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