

Service-oriented 6G network architecture for distributed, intelligent, and sustainable cloud-native communication systems (6G-Cloud)

6G-Cloud Project Introduction

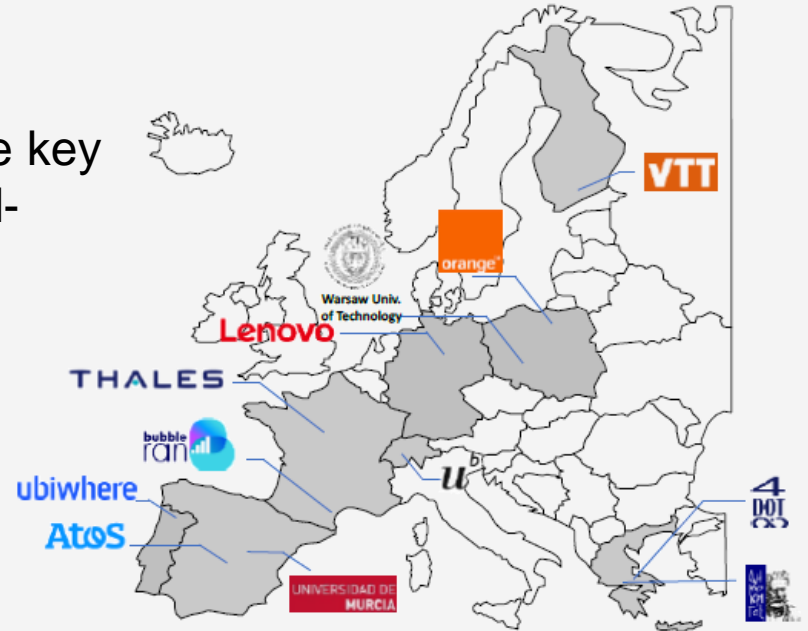
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6G-Cloud Overview

6G-Cloud will research, develop, and validate key technologies to realize an AI-native and cloud-friendly system architecture atop the cloud continuum

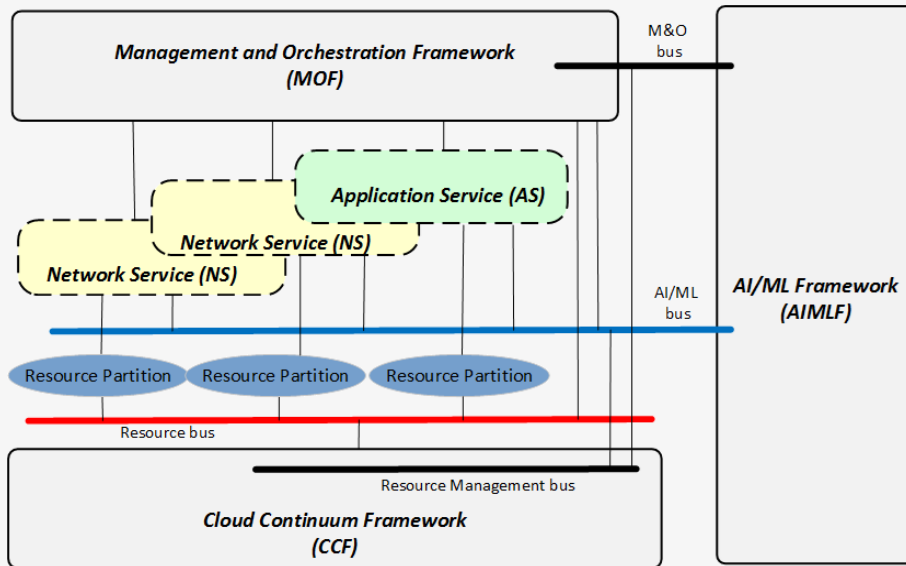
- Among SNS system architecture projects, 6G-Cloud has dedicated focus on cloud-native aspects of 6G system.
- Duration: 1/1/2024 – 30/6/2026



Main Objectives

- Realize an **end-to-end 6G service-based architecture** atop multi-stakeholder cloud environments for extreme 6G use cases support.
- Develop **cloud continuum framework**, resource and management framework, AI/ML framework and relevant business interfaces
- Propose new **network exposure mechanisms** and APIs for extreme control programmability
 - **Validate** the architecture design and **demonstrate** the support for extreme use cases
- Integrate **network digital twin** and **distributed AI/ML framework** as a native design in new end-to-end service-oriented architecture
- integrate **communication and computing functions** under the unified control and management framework
- Study **energy efficiency, security, reliability** and **sustainability** aspects of the service-oriented system architecture

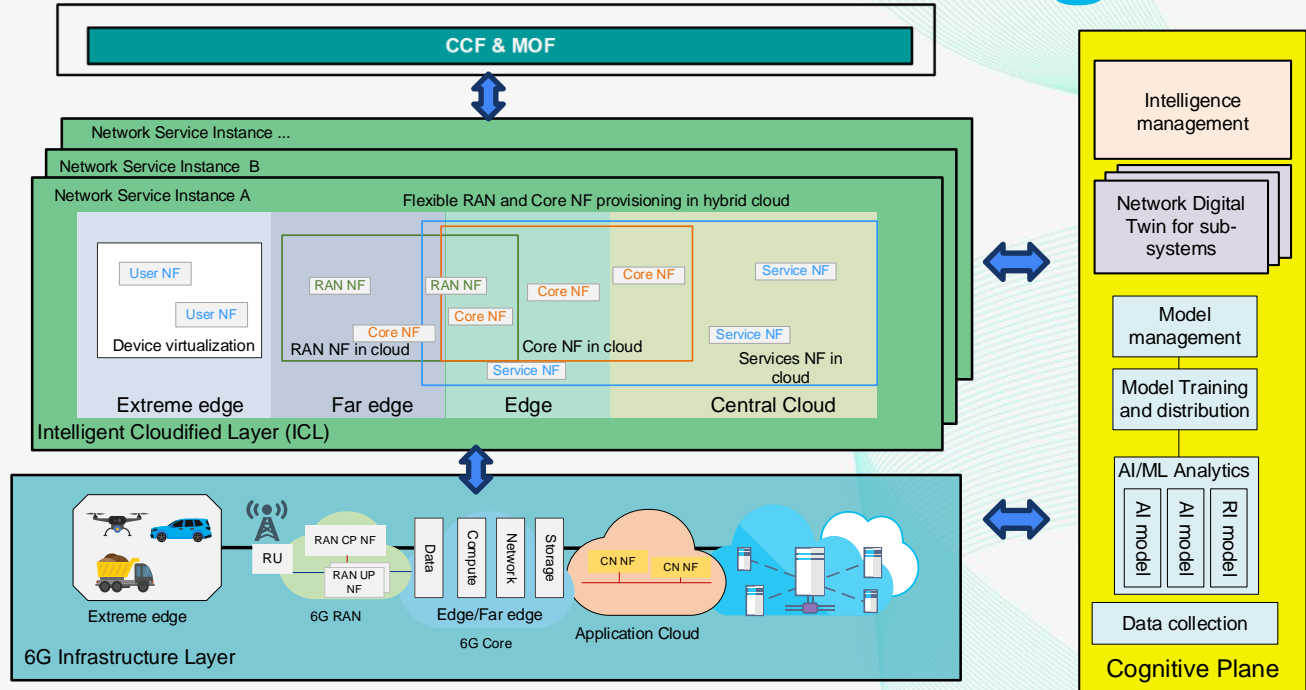
Main Concept



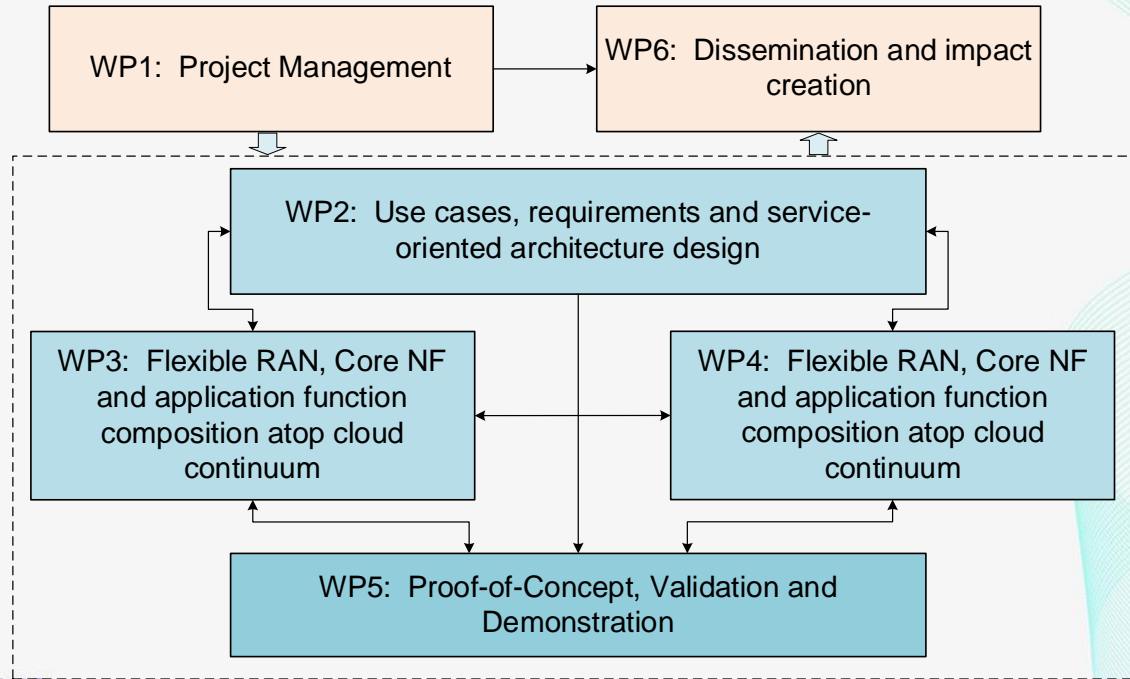
- AI-driven **Cloud Continuum Framework** and business interfaces for a multistakeholder environment
- AI-driven distributed **Management and Orchestration Framework** able to cooperate with the Cloud Continuum concept
- 6G native **AI/ML Framework** capable of monitoring and updating **AI-driven functions** in real-time
- True **E2E service-oriented 6G network design** covers end-user terminals through RAN and core to edge applications
- Generic mechanisms for dynamic integration of "**virtualized networking solutions**" to form a "**Network-of-Networks**" in a multistakeholder environment.

Service-Oriented Network Design

- **Service-Oriented RAN** design with RAN functions as services
- **RAN-core network function convergence** over cloud continuum framework
- **Extreme cloud concept** including user devices as part of cloud continuum framework
- **Cognitive plane** for AI-driven functions



Project Work Structure





www.6g-cloud.eu

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