



Tellus



Press release

Gaia-X Project Tellus: Successful completion of the design phase – network and cloud layers ready for use

Frankfurt am Main, 24 October 2023. Tellus, the Gaia-X development project led by Internet Exchange operator [DE-CIX](#), has reached another milestone with the completion of the design phase. With this important step, the project enters the implementation phase, as the network and cloud layers are now ready for use.

A core project of the design phase was the development of the matchmaking and broker services for the network and the cloud. These brokers are critical for the delivery of services and resources on the Tellus platform and have been carefully designed to ensure smooth and efficient intermediation between users and service providers. Using the intuitive Tellus interface, users can effortlessly access all available services from providers, clouds, and networks to make use of precisely the services they need. On the basis of users' requirements, the sophisticated matchmaking service suggests exactly which services are needed.

Secure, interconnected, and federated data infrastructure

Another important step was the introduction of an authentication process based on Self-Sovereign Identity (SSI). This approach allows users to maintain full control over their identity while providing secure authentication. This helps to strengthen data security and protect the privacy of users, thus meeting the most modern security standards.

“The successful completion of the design phase in the Tellus project marks a significant step towards live operation,” highlights Dr. Christoph Dietzel, Global Head of Products & Research at DE-CIX and Tellus Project Manager. “Having concentrated in the now completed design phase on the matchmaking and broker services, the user-friendly Tellus user interface, and the innovative authentication process, our developments put their focus on a secure, connected, and federated data infrastructure with data sovereignty at its core. Tellus has taken inspiration from real-world use cases and will find broad application within the Gaia-X ecosystem for the

high-performance interconnection of dataspaces and services. With guaranteed performance and security, we are shaping the future of digital services, making them uncomplicated and automated.”

The project goal is to develop and deploy a Gaia-X compliant network infrastructure for sensitive use cases that leverages existing Internet infrastructure and adds a software layer. An operational prototype for this software-based network infrastructure is expected to be ready by the end of 2024.

Gaia-X Project Tellus: Milestones to date

The project is supported by a consortium of 10 companies and organizations, with funding of around 8.75 million Euro provided by the German Federal Ministry for Economic Affairs and Climate Action (BMWK). In a first step, the Tellus consortium initially defined specific use cases characterized by particularly high requirements in terms of the interconnection of, for example, various cloud services and resources. These include the real-time creation of a “digital twin” of machines and plants in Industry 4.0, and the transmission of motion stimulus to robots. On the basis of these requirement profiles, the project team has now designed the technical architecture, consisting of integrated software instances and homogeneous interfaces. This is intended to create a software-based networking layer (cross-domain SDN) that is based on the technical foundation of the public Internet, but that reduces complexity for connections through automated matchmaking with appropriate providers, and allows for performance guarantees.

Central to the technical architecture is a hierarchical concept with a Super Node and additional Tellus Nodes at each participant. The Super Node takes over the calculation of the best route in each case. To do this, it uses a service registry in which other providers register their services, together with the guaranteed performance and fulfilled security requirements. The Super Node then compares these entries with the requirement profile for the respective use case and automatically takes over the matchmaking with suitable providers. The Super Node is a logically central component, but it can be physically distributed across different systems.

Facts, figures & data on the Tellus project

- 10 participating companies & organizations: DE-CIX, Cloud&Heat, KAEMI, Mimetik, plusserver, CISPA Helmholtz Center for Information Security, SpaceNet, WOBCOM, TRUMPF, and IONOS.
- 45+ team members
- Funding of 8.75 million Euro
- Project duration of 36 months, started in November 2021
- 3 specifically defined, future-oriented use cases

Project Milestones

1. Completion of the requirements analysis - already achieved
2. Definition of the technical architecture - already achieved
3. Completion of network and cloud layer design - already achieved
4. Completion of the implementation phase - planned for fall 2024
5. Tellus prototype is implemented and available - planned for the end of 2024

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About DE-CIX

DE-CIX is the world's leading operator of Internet Exchanges (IXs). DE-CIX offers its interconnection services in close to 50 metro-markets in Europe, Africa, North America, the Middle East, and Asia. Accessible from data centers in over 600 cities world-wide, DE-CIX interconnects thousands of network operators (carriers), Internet service providers (ISPs), content providers and enterprise networks from more than 100 countries, and offers peering, cloud, and interconnection services. DE-CIX in Frankfurt, Germany, is one of the largest Internet Exchanges in the world, with a data volume of almost 34 Exabytes per year (as of 2022) and close to 1100 connected networks. More than 200 colleagues from over 30 different nations form the foundation of the DE-CIX success story in Germany and around the world. Since the beginning of the commercial Internet, DE-CIX has had a decisive influence – in a range of leading global bodies, such as the Internet Engineering Task Force (IETF) – on co-defining guiding principles for the Internet of the present and the future. As the operator of critical IT infrastructure, DE-CIX bears a great responsibility for the seamless, fast, and secure data exchange between people, enterprises, and organizations at its locations around the globe.

Further information at www.de-cix.net

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