Tellus

30 YEARS DE-CIX

Press release

Successful completion: Gaia-X Project Tellus delivers key component for the collaborative data economy

Frankfurt am Main, 28 January 2025 – The Gaia-X development project Tellus has successfully completed its implementation phase. Led by the Internet Exchange operator DE-CIX, the consortium has developed a prototype interconnection infrastructure that provides fully automatic and virtual access to networks for sensitive, real-time applications across distributed cloud environments. Tellus covers the entire supply chain of interconnection services and integrates offerings from various providers based on the decentralized and distributed data infrastructure of Gaia-X. This makes Tellus a key component for the comprehensive connectivity required by intelligent business models in a collaborative data economy.

Delivering networks and services according to application demands

In the past, implementing business-critical applications in distributed IT systems required purchasing all necessary components, services, and functions separately from different providers and manually combining them in a time-consuming and costly process—without end-to-end guarantees. Tellus' open-source software not only automates these processes but also ensures specific connectivity requirements. During the final phase, the project team implemented a controller and service registry which function as central elements of a super-node architecture. The controller coordinates and provisions service offers and orders via application programming interfaces (APIs). The service registry stores and lists all services that the controller can search through, address, and combine. The search process runs via the controller into the registry and the associated graph database, which then delivers suitable solutions. Finally, the controller commissions the interconnection infrastructure to provision network and cloud services to meet the requirements of the respective application, including guaranteed performance and Gaia-X compliance.

Deployable prototype: Reliable and dynamic connectivity for data exchange

In the implemented proof of concept (PoC) demo, virtual networks and services can be provided via a user-friendly interface to meet the requirements of industrial applications, for example, transmitting hand movements to a robot in real time via a smart glove. The same applies to delivering connectivity for a digital twin from IONOS in a manner required by production plants, to simulate, monitor in real-time, and optimize manufacturing steps. Equally, TRUMPF's fully automatic laser cutting tools, where reliable and dynamic networks keep systems available and pay-per-part business models productive.

Milestone for a secure, sovereign, and collaborative data economy

"Since Tellus registers the products of all participants in a standardized way and stores the network nodes in a structured manner in a graph database, interconnection services can be composed end-to-end via a weighted path search," says Christoph Dietzel, Head of Product & Research at DE-CIX. "With the successful completion of the implementation phase and the proof-of-concept demo, we have not only demonstrated the technical feasibility of our Gaia-X compliant interconnection infrastructure but have also set an important milestone for the future of secure, sovereign, and collaborative data processing," Dietzel adds.

Further information about the project, the consortium, and all progress: www.tellus-project.de

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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 60 locations in Europe, Africa, North and South America, the Middle East, and Asia. In 2025, DE-CIX is celebrating its 30th anniversary. The company and its first IX were established in Frankfurt, Germany, in 1995. Today, 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 other interconnection services. DE-CIX Frankfurt is one of the largest Internet Exchanges in the world, with a data volume of almost 45 Exabytes per year (as of 2024) and close to 1100 connected networks. Close to 250 colleagues from over 35 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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