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Fraunhofer-Institut für Produktionstechnologie IPT
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03.06.2024
http://idw-online.de/de/news834595

Forschungsprojekte, Kooperationen
Bauwesen / Architektur, Elektrotechnik, Informationstechnik, Maschinenbau, Verkehr / Transport
überregional

5G Industry Campus Europe in Aachen expanded with Cloud RAN

The Fraunhofer Institute for Production Technology IPT, RWTH Aachen University and Ericsson GmbH have successfully expanded the 5G-Industry Campus Europe in Aachen with a "Cloud RAN" infrastructure. Cloud RAN enables the virtualization of the Radio Access Network (RAN) and creates a basis for the use of 5G functionalities and industrial applications on shared server hardware. This simplifies the introduction of new technologies and production systems within an efficient and scalable production infrastructure in companies.

The RAN is an important component of mobile networks and enables wireless communication between mobile devices and the mobile provider's core network. Until now, operating your own 5G network has required separate servers for RAN data processing. Cloud RAN offers an alternative here through the use of standard servers on which a virtualized RAN application and industrial applications can be operated together.

Cloud RAN technology makes it possible to operate the entire RAN for the 5G system on existing local cloud systems without having to provide separate servers for RAN operation. To achieve this, the RAN software is isolated from the hardware: the virtualization of the RAN enables the use of manufacturer-independent hardware and simultaneously supports the operation of industrial applications, for example for processing sensor data, speech recognition, image processing or for controlling robots on the same system. The parallel and needs-based operation of applications reduces resource requirements and makes it easier for companies to set up a 5G infrastructure that is individually adapted to their needs.

Research project prepares Cloud RAN for industrial use

The "CLOUD56" research project, funded by the Federal Ministry for Digital and Transport (BMDV), aims to make Cloud RAN technology ready for industrial use. To this end, the partners are researching and validating the use of Cloud RAN at the 5G-Industry Campus Europe using four specific application scenarios from industry: through the development of a sensor-to-cloud pipeline for process monitoring in milling, the virtualization of control and object recognition for mobile robotics in freely interlinked assembly and cloud-based, robot-supported prefabrication in construction production. In addition, virtualized assistance functions for medical applications in surgery rooms and clinics are being investigated in the field of healthcare.

Research platform for future 5G applications

The implementation of Cloud RAN technology at the 5G-Industry Campus Europe serves as a research platform for future 5G applications for industry. The flexibility and scalability of the Cloud RAN testbed gives companies the opportunity to evaluate and implement individual network solutions according to their own requirements.

Project coordinator Niels König, head of the Production Metrology department at the Fraunhofer IPT, emphasizes the importance of this success: “For us, Cloud RAN represents a fundamental shift in the field of industrial 5G applications. Thanks to a completely new architectural approach, Cloud RAN promises an extremely scalable network deployment on standard hardware as well as synergies with cloud-based industrial applications. In addition, it contributes to the creation of a modern and sustainable IT infrastructure for a wide range of industrial applications. This project expands our existing infrastructure at the 5G-Industry Campus Europe and opens up completely new possibilities for our project partners.”

Daniel Leimbach, CEO of Ericsson GmbH, emphasizes the importance of adding Cloud RAN technology to the 5G-Industry Campus Europe for the industrialization of the Open RAN (Open Radio Access Network) technology concept: “Open RAN meets Industry 4.0. The expansion of the 5G-Industry Campus Europe with Ericsson's Cloud RAN technology shows that the project continues to play a leading role worldwide for the use of 5G technology in the production context. The collaboration once again demonstrates that Ericsson is leading the way in industrializing Open RAN.”

Funding

The “CLOUD56” project is funded by the Federal Ministry for Digital and Transport (BMDV) under the funding code 11-12212 from April 1, 2023 to December 31, 2024.

Project partners

- Fraunhofer Institute for Production Technology IPT, Aachen
- Ericsson GmbH, Herzogenrath
- Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen
- RWTH Aachen – Chair of Medical Engineering, Aachen
- RWTH Aachen – Chair of Individualized Production in Architecture, Aachen
- RWTH Aachen – IT Center, Aachen
- Icon Pro GmbH, Aachen
- SMS digital GmbH, Düsseldorf
- Neura Robotics GmbH, Metzingen
- Richard Wolf GmbH, Knittlingen
- SurgiTAiX AG, Herzogenrath

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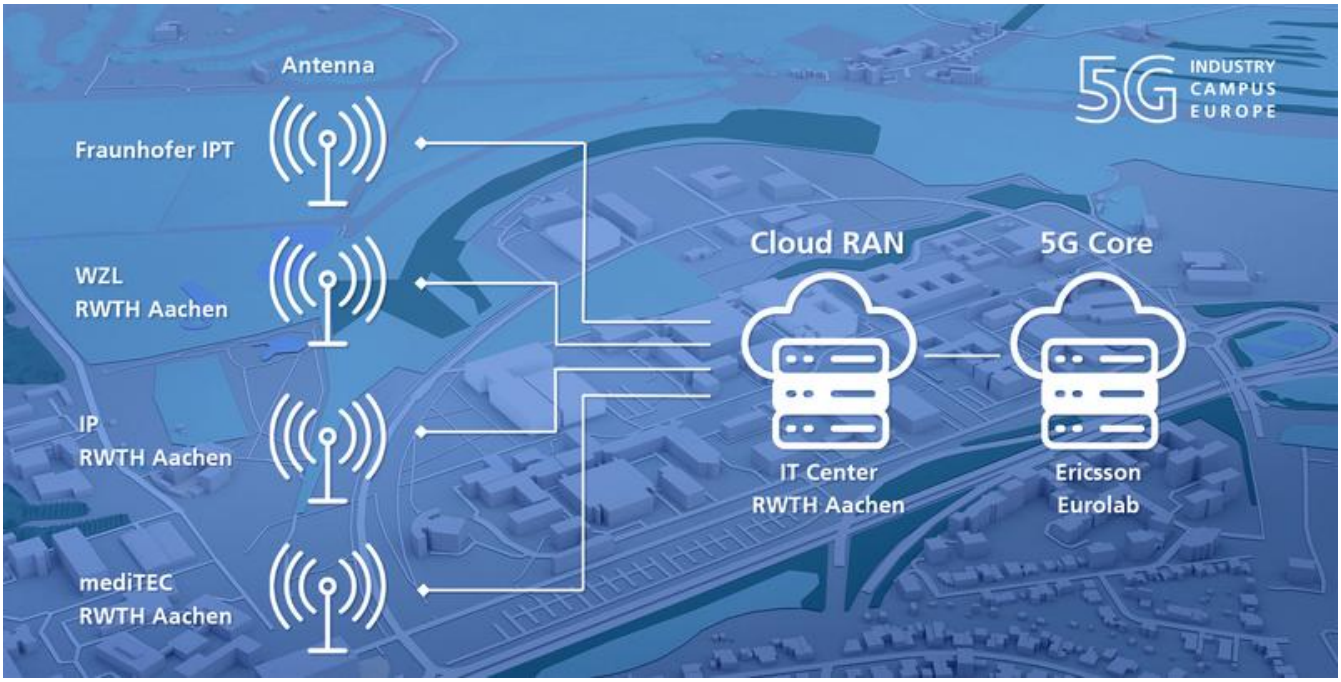
URL zur Pressemitteilung:
https://www.ipt.fraunhofer.de/en/Press/Pressreleases/240603-5g-ice-in-aachen-expanded-with-cloud-ran.html



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