TESTBED CLOUD TO CLOUD

Application for the manufacturing industry

SUMMARY
Open, neutral and pre-competitive testbed for the development and validation of cloud-to-cloud communication based on SME use cases. Cloud interoperability is enabled by means of transport protocols. Communication from edge to cloud is also examined and tested, including the necessary security mechanisms.

CURRENT SITUATION
The cloud-to-cloud testbed is conceived such that it always starts with SME requirements and use cases. These use cases provide the basis for the architecture and cloud technology used. Plugfest means that 26 testbed partners involved can continuously try out their (pre-)products with one another (“plug together”). The Federal Ministry for Economic Affairs and Energy’s Industrie 4.0 Competence Center in Augsburg hosts the testbed and provides a factory building and all the technical equipment for implementing the use cases.

PROJECT DESCRIPTION
The transport protocols MQTT and AMQP, which are validated against the SME use cases and standards, form the basis of the testbed. The testbed also deliberately works with standardization templates. The use case requirements are used to define the technology and the architecture. The key technologies concerned are cloud transport protocols, security technologies and apps, with different manufacturers’ technologies being networked together. A test setup will be available from May 2018 and will be based on the factory use case of a medium-sized south German company.

SOLUTION
Interoperability is based on OPC UA. Two transport protocols are validated in the testbed: MQTT and AMQP.

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INDUSTRIE 4.0 – FEATURES
Validation of edge-to-cloud and cloud-to-cloud technologies between different cloud providers.

STANDARDIZATION APPROACHES
The following standards are used and validated: IEC 62541-6 (OPC UA), IEC 62443 (IT security), MQTT, AMQP.