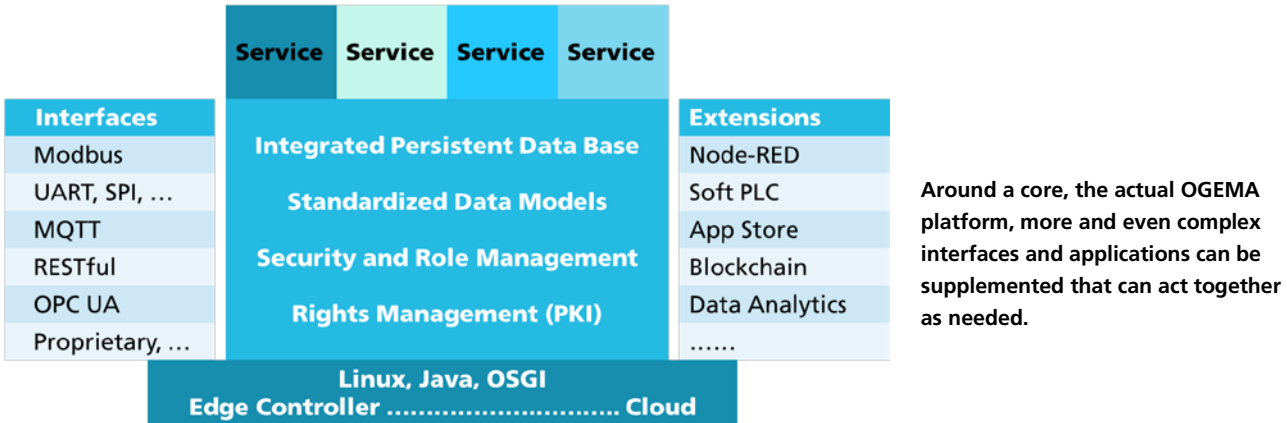**FRAUNHOFER INSTITUTE FOR INTEGRATED CIRCUITS IIS**

SECURE AND FLEXIBLE EDGE ANALYTICS PLATFORM

System integration and upgrading to Industry 4.0 capability with Edge Computing components repeatedly leads to the same questions:

- How do I manage the multitude of different interfaces?
- How do I connect the different island solutions?
- How do I integrate new application programs?
- How do I consider IT security in my systems?

Around a core, the actual OGEMA platform, more and even complex interfaces and applications can be supplemented that can act together as needed.

The answer to these questions is called OGEMA – A secure and flexible Edge Computing platform that allows integration of communication protocols and the cloud.

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The Framework from Fraunhofer IIS for Reliable Edge Computing

OGEMA was developed as a linkage platform for various communication technologies, which also provides a runtime environment for local services and can be operated on a wide variety of edge controllers. These individual small programs manage on-site all upcoming tasks. The framework has already been extended to several, mostly ARM-based platforms, e.g. porting of top-hat rail installation and tested with various interfaces. The added value compared to pure gateway solutions is the intelligent linking and processing of data with an integrated database and a security concept. If required, OGEMA supports a secure and reliable connection to the cloud or even runs in the cloud. Specifically created or already existing services in a library can be installed during operation. One or more cooperative services can easily handle more complex automation and monitoring tasks.

A large number of interfaces already available make it easier for the user to quickly prototype innovative Industry 4.0 solutions. All data that a communications adapter receives or transmits is stored or read in a system-internal database. This mechanism allows interoperability between the different interfaces and the services. This enables mobile devices and computers with standard browsers to access the individual information on the edge controller. It is also possible to interact with OPC UA servers or other interfaces.

Services for Complex Exchange and Synchronization Options:

- Bidirectional data synchronization with OPC UA servers
- Node-RED plugin for interaction with graphically linked JavaScript modules for rapid prototyping of applications
- Interface to SPS OpenPCS software for PLCs programmed to IEC61131
- PFA (Portable Format for Analytics) interface for data analytics in preparation
- Reload services with PKI infrastructure via app stores

Typical OGEMA Applications:

- Retrofitting of existing systems for Industry 4.0 suitability
- Data analytics, predictive maintenance, anomaly detection and energy management for life cycle management and production optimization

Our Edge Computing Offer:

- Secure Edge Computing platform including Edge Analytics
- Customized planning and development of applications in IIoT
- Advice and testing of the most suitable option
- System architecture for IIoT applications
- System integration of hardware and software
- System design even when retrofitting of existing components
- Optimum solution for your application – technology and system independence