Smart Cluster approach: Open Connectivity & dezentralized intelligenz

What is a Smart Cluster?

Smart Cluster = Open Connectivity + Connected Intelligence

Be open and free to changes in the IoT, it primary needs two parts: loose coupling and a decentral organized intelligence.

Everything revolves around a simple idea: a flexible IT infrastructure supported by decentralized intelligence.

The challenge of today's approaches

Are you continually confronted with uncooperative standalone solutions?
Are you eager to break open rigid structures and systems to unlock new synergies?
Would you like to reveal the potential of a smart system-wide network?
Are you looking for IT systems that are modern, integrated, secure, and ready for the future?

The Internet of Things (IoT) is a trend that has landed: devices talking to each other to make our lives easier. And yet IoT systems and the smart home market in particular both feature a large number of competing, manufacturer-dependent systems and devices.
The multitude of different IT landscapes also poses another problem: Over time, these have often evolved into monstrously large and usualy closed systems. It’s often very tricky to adapt these to satisfy changing requirements – and it can come with great effort and risk.

The solution lies in our special approach

We are adaptive: We use manufacturer-independent open standards – to keep all our options open, for today and tomorrow.
Small, smart components (e.g. microservices) and transparent interfaces (EventBus, RESTful APIs) finally make it easier and cheaper to respond to evolving needs as required.

We look at the big picture: We carefully consider every level and the various standards involved, and focus on automation.
The strength of our approach lies in the use of a common configuration center – the infrastructure repository. This repository holds a record of all systems and components. When changes are made, all dependent components are automatically updated with the new settings.This ensures that communication across the system is secure, fault-tolerant, and completely integrated – with full transparency and control.

Your technology then has the agility and flexibility to respond quickly to changes – eliminating the need for costly individual adaptations every time.

What you archive with a Smart Cluster

To enable real open, flexible and future save information systems, is it important to have the following principles in place:

Independent

Design all interfaces to be independent from type of platform and programming language

Uniform Interface

Use common basic functions and pure structured data (document style). Here it will be quite useful to have a closer look to the RESTful design principle.

Stateless

Don't use session, cookies, tracking parameter and other implicit kind of temporary status storages. As they block resources, hide communication workflows, make usage complex and are risky for security.

Transparency

Be open. Provide the API for everybody. Use a common infrastructure database, from which all configurations can be taken, and to which all current used interface parameters can be written.

Layered

Best of breath: For each layer, have the best fitting technology. Use established standards wherever possible. Don't reinvent the wheel.

Data Centric

Wherever possible use the business driven data structures. Doing so the API will be the natural base for business discussions.

Scalability

Scalability means parallel handling. Best by using small technical clusters (like Microservices). Note, that this is the opposite of monolithic systems.

Event bus / notificaton bus / message bus

For the successful communication in connected systems, a publish-subscribe notification bus (like MQTT) does perfectly fit. With such, all kind of data and events can be handled as a cached in a queue for all interested nodes.

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