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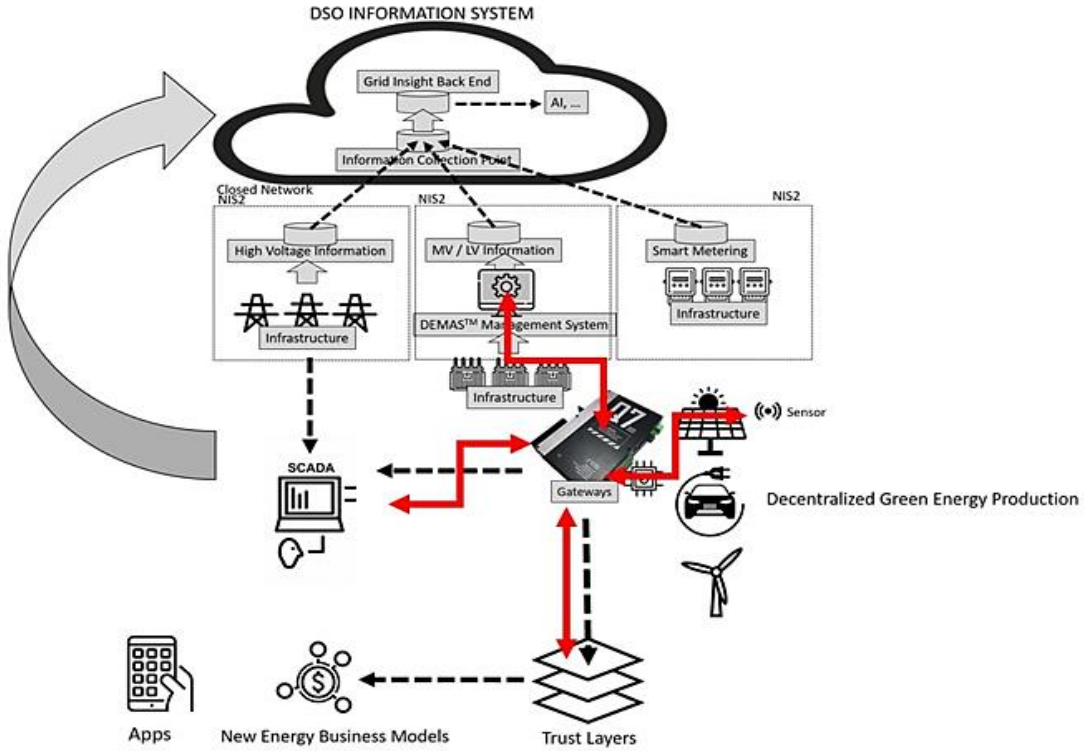
‘Power of the Many’ – Energy Communities

Tokenization can revolutionize the way energy is traded in the bi-directional energy market by allowing market participants to transfer and trade energy in the form of tokens rather than the traditional continuous flow of energy. This would enable customers to become energy-responsible parties by offering them the ability to purchase energy, such as community renewable energy assets, EV charging, and hot water as a service

Gateways & Sensors with crypto-anchoring labeling energy data

Bausch Datacom and partner RiTTec are one of the first European manufacturers which will bring a set of tools on the market capable of performing crypto anchoring to label produced energy coming from Solar parks, EV chargers (Vehicle to Grid), Windmills, heat and power coupling meters.



RITTER TECHNOLOGIE

SUNIFIED

BAUSCH datacom

Datacommunication Solutions for Energy – EV – Solar – Wind – Water
PSTN - GPRS - 3G - LTE – NB IoT - 5G – LoRa
‘A Company in Motion’
Tokenization & Crypto Anchoring for Decentralized Green Energy Business Models

ENCLOSURE
Dimensions housing: : 172 mm x 35 mm x 135 mm
IP51
DINrail snapslot for easy DINrail mounting
Inflammability class acc. to UL 94: HB

INTERFACES & CONNECTORS
2 x separated Ethernet 10/100 - RJ45
3 x RS-485 Isolated
1 x LTE CAT M1 / GPRS / EDGE - SMA
Mini SIM (2FF), eSIM MFF2 Optional

COMMUNICATION
Sierra Wireless CF3 HL footprint
HL7692 – FDE band LTE Cat-1 with dual band
GSM/GPRS/EDGE fallback
GSM/GPRS fallback
SIM card and/or eSIM
eUICC possibilities
50 ohm SMA antenna connect
Bluetooth Wirepass

SECURITY
VPN IPsec
Trust anchor chipset for tokenisation
Dual Boot for fallback on Firmware update failure
The Firmware is a FIT Image and hashed using
SHA-256, encrypted using AES-256-CBC and
signed with a X.509 Cert, using a 4096 bit RSA key.
The cert check and decryption is done by U-Boot,
which has the needed AES and Cert Info embedded.

FIRMWARE
Software Packages
Container technology (docker)
Kernel (Linux 5.4 Mainline kernel)
DNS
NTP Server and Client
TCP/IP IPv4 (IPv6 in future possible)
DHCP
IPSec
PPP (Point to Point Protocol)
Telegraf Agent (Server for collecting and
reporting of metrics)
Nftables (Firewall)
OpenSSH
OpenSSL
Hardware Watchdog
Container
Open PLC
Protocol Converter
Modbus RTU Master
Modbus TCP Master
IEC 60870-5-104 Server (Client Optional)
IEC 61850 Client Ed2
MQTT v5 Client

ENVIRONMENT
Operating Temperature: -20 C +60 C
Operating Humidity 95% non-condensing

OPTIONS DB RTU SL+
8 x DI (active)
2 DO
2 AI
1 Ethernet Port RJ 45

POWER SUPPLY
DC 24/48 V
AC 100-240V 50/60Hz optional
Supercap optional

CERTIFICATION
CE

STRENGTHS
Efficient:
configurable flexible links to external web applications (based on ID's)
data interfaces to existing applications
management functions for different device types through manufacturer-related
extensions (plugins)
Secure:
multi-layered security measures at network and application level
stable and fast update procedure
Reliable:
developed according to ISO 27001
databases and services can be distributed across multiple data centers

CONFIGURATION AND UPGRADE TOOL
The DEMAS management tool (Device Management System) is a modular management system designed as stand alone solution or to be integrated into existing management systems.
The DEMAS system has 5 main functions: Commissioning, administration, system control, monitoring and provision of data to 3rd party systems (s.a. SCADA...)
Configuration and management is done using a file-based management concept. Firmwares, containers, and configurations are created using File Upload and Plugin Mechanisms and uploaded to the DeMas.

FUNCTIONALITY
Mass grouping & configuration
Mass firmware upgrade
Automatic Commissioning
Asset Management
New applicatons on demand.

Basic technology to enable tokenization of energy

In order to generate trusted data for energy production, storage, sharing and trading, this data must be labeled, giving it a stamp that proves authenticity and uniqueness. Bausch Datacom and partners Ritter Technologie and Sunified have created a unique set of tools to allow different new applications in the decentralized green energy production.

Not only for energy sharing and trading but also for improving the quality of production assets, labeling of data can be very useful. A continuous measuring of the efficiency of infrastructures such as solar, windmill parks and energy storage, and labeling this data and sending it to AI or other analysis centers will be a key tool improving the production of decentralized green energy.

Basic elements of the technology are the Unity module, capable of measuring powerdata, labeling and sending the data to a gateway over Bluetooth Wirepass and the DinBox RTU OSM gateway which will receive the data, crypto anchor it and send it to all possible backends.