



Matrix99.aiLake

Brief overview

Matrix99 is a spin-off from STROM Telecom, and focuses on AMI, Smart Grid and IoT systems since 2004

About Matrix99 a.s.



STROM
telecom

*BSS/OSS
implementation*



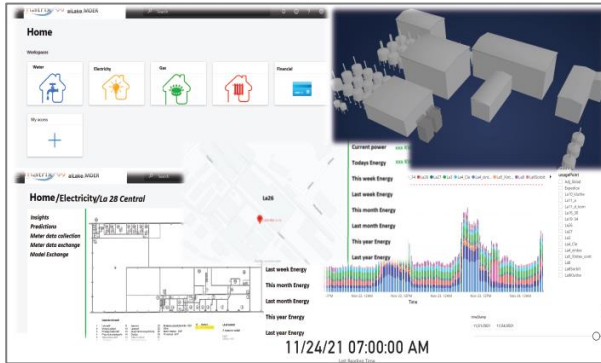
*AMI
Smart Grid
IoT systems*

- Matrix99 was a part of STROM Telecom, a publicly traded company that implemented complex BSS/OSS for more than 150 million users
 - STROM Telecom has since been acquired by Sitronics
- Matrix99 has been focusing on AMI, Smart Grid, and IoT systems since 2004
 - Since the very beginning all products have been based on Microsoft technologies and CIM standards



Matrix99 aiLake.MDERaaS is a platform that allows real time monitoring and analyzing the consumption & co-generation of energy

Overview

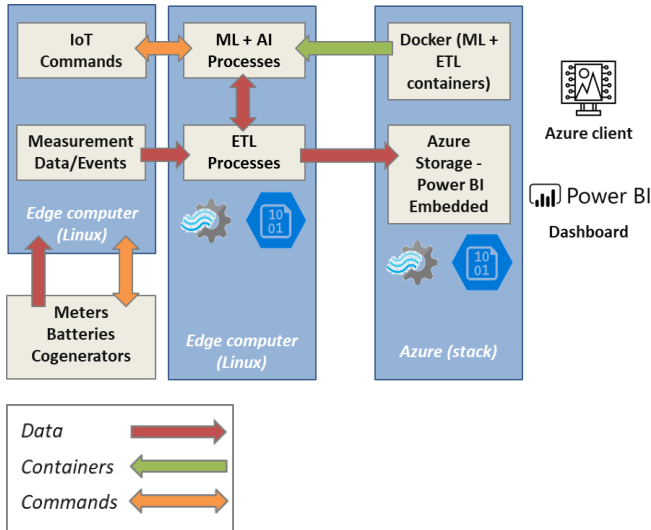


Overview of aiLake.3mDER platform

- **aiLake.3mDER (Metering, Modeling and Management for Distributed Energy Resources)** enables analysis* of consumption & cogeneration of electricity, water, gas, and thermal energy
 - Key CIM (Common Information Model), BIM (Building Information Model) and CDM(Common Data Model) protocols allows easy integration in ICT systems**
 - Metering of renewable co-generation sources supported
- Solution has a flexible hybrid architecture (cloud/on site-edge) enabling the best design
- Solution uses Azure Digital Twins for electricity, water, heat, and gas networks
 - These are models as described in JSON-LD-based Digital Twin Definition Language (DTDLD)

aiLake.3mDER can communicate with numerous data collection systems by supporting many standards of communication

Data collection and processing



Schematic of 3mDER platform

- ✓ MODBUS (serial and IP)
- ✓ SunSpec Alliance
- ✓ DLMS
- ✓ M-BUS (Wired and Wireless)
- ✓ IEC 61850
- ✓ IEC 60870-5-101, 104
- ✓ OCPP
- ✓ KNX
- ✓ SNMP
- ✓ AMQP, MQTT, REST/JSON

Overall, the aiLake.MDERaaS platform can reduce costs for both distributors and their customers

Benefits

- ✓ *Real Time Consumption Monitoring*
 - ✓ *Optimization of Consumption and Equipment Replacement*
 - ✓ *Technical and Non-technical Loss Detection*
 - ✓ *Co-generation Metering Support*
 - ✓ *Prediction of Consumption, Costs, and Equipment Failures*
 - ✓ *Billing Data Preprocessing with Flexible Tariff System*
 - ✓ *Overall Cost Reductions*
- The solution empowers customers and distributors alike to achieve overall cost reductions
 - ML algorithms help detect points of loses and usage patterns
 - Best-of breed equipment enables installation in harshest industrial or residential conditions

There are three key aiLake.3mDER customer plans

Customer plans



customers that monitor, manage and optimize their own consumption, including cogeneration and storage (industrial and public areas/buildings) - **aiLake.3mDER.PROSUMER**



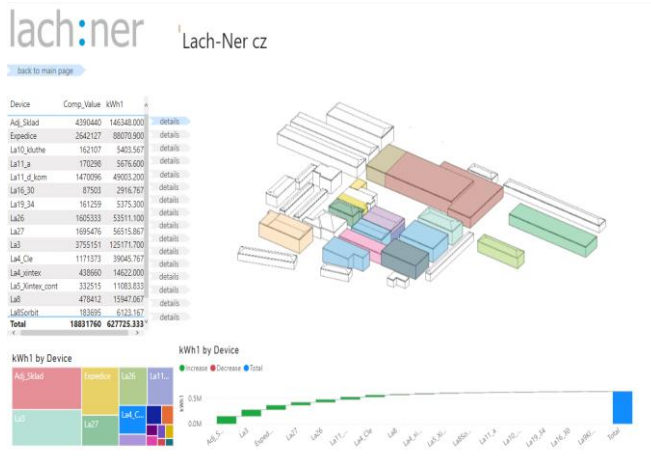
ESCO (Energy Services Companies) that provide these services for PROSUMERS and act as broker for energy markets -
aiLake.3mDER.ESCO



companies that meter consumptions of commercial consumers (customers) for billing purposes, as a part of utility companies (Distribution Service Operators - DSOs) or as a service for such companies (metering/billing providers) -**aiLake.3mDER.DSO**

Matrix99 aiLake.3mDER.PROSUMERS supports Consumers Producers of energy (PROSUMERS) in optimizing their consumption

PROSUMER



aiLake.3mDER.PROSUMER platform

- Uses info on energy usage, generation (renewable & classic), and storage and operational capacities
- The solution also offers consumption* and renewable generation prediction** Operational constraints are calculated based on the predictions, storage, and local rules (i.e., open market etc.)
- Azure Digital Twin technology allows the user to simulate different scenarios based on current or past situations

Matrix99 aiLake.3mDER.ESCO supports ESCO in optimizing their consumption and economics of energy generation for their customers

ESCO

Overview

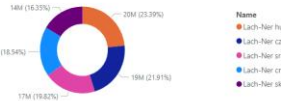
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Country	City	Name	Total_Comsumtion	
Hungary	Szeged	Lach-Ner hu	20136670	more details
Czech	Neratovice	Lach-Ner cz	18860420	more details
Serbia	Novi Sad	Lach-Ner srb	17056895	more details
Croatia	Karlovac	Lach-Ner crt	15984720	more details
Slovakia	Trnava	Lach-Ner sk	14070044	more details
Total			86078749	

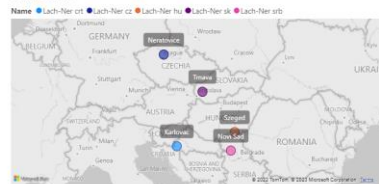
Energy consumption by Country



Total_Comsumtion by Name



City and Name



Overview of aiLake.3mDERS.ESCO platform

Uses info on energy usage, generation (renewable & classic), and storage and operational capacities as a service to PROSUMERS

With aiLake.3mDER.ESCO companies can offer different generation types as a single type on the deregulated markets. These can be offered as secondary or tertiary reserves

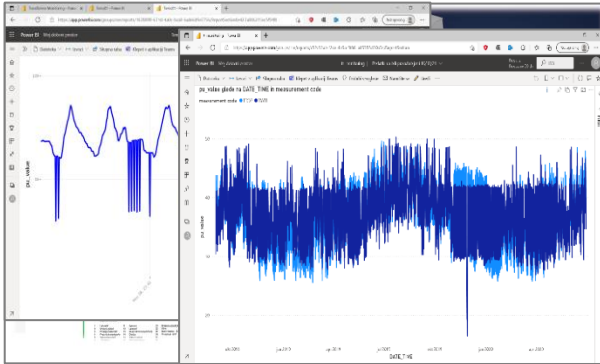
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Matrix99 aiLake.3mMDERS.DSO is aimed to DSO (Distribution System Operators) and companies that do metering and/or billing services

DSO

Overview



Overview of aiLake.3mDER.DSO platform

- This plan supports data collection from large number of meters and processing them using BigData tools
- Metering and/or billing service companies can collect and pre-process data, so DSOs can concentrate on their core business – better distribution of electricity, gas, heat and water.
- This can be opportunity for the TELCO companies that own communication networks to extend their services portfolio
- Also, optionally, in connections with CRM and billing systems, rating using flexible tariff plans are supported, adding flexibility to existing systems



Thank You!