EU-SysFlex

Data Demo:

Demonstrations of cross-border and cross-sector data exchanges

The aim of Data Demo is to implement on conceptual level a number of data exchange system use cases defined for flexibility data exchange and any other private data exchange based on Data Exchange Platform (DEP) concept. Several demonstrations focus on aspects of data management, including cross-border communication between different data exchange platforms and with different stakeholders in order to facilitate cross-border exchange of flexibility services with the following elements:

- Cross-border data exchange between different stakeholders – system operators, market operators, end customers, data hubs, service providers, etc.;
- Handling of personal and commercially sensitive data;
- Affordable application for smaller distributed DSR;
- TSO-DSO flexibility data exchange application;
- User interface – single access point to data, services and applications;
- Combined access to metering and operational data;
- Cross-sectoral data usage;
- Big data collection, storage, processing;
- Cyber security and data privacy requirements.

Key Features

- Customer-centric cross-border data exchange model for flexible market design serving all stakeholders (TSOs, DSOs, suppliers, flexibility providers, ESCOs, etc.).
- Interoperability of different data exchange platforms, including cross-sector data exchanges.
- Application for flexibility marketplace to support TSO-DSO flexibility data exchange.
- Tool for aggregator to aggregate smaller distributed flexibility sources enabling affordable access to market.

Implementation approach
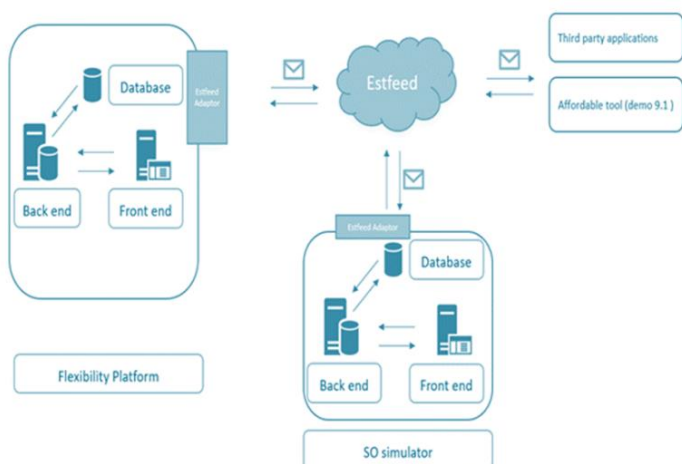
Initial focus was placed on elaborating data exchange system use cases (SUCs), which range from flexibility market specific (e.g. prequalification SUC) to more agnostic (e.g. consent management SUC). Most SUCs were implemented through ten data exchange demonstrators. The most extensive are the "Flexibility Platform" and "Affordable Tool" demonstrators.

An environment for executing integration tests was set up – "Estfeed research environment". Existing technologies applied include data exchange platforms Estfeed (including data hub and customer portal), Unified eXchange Platform (UXP), X-Road and ECCo SP (ENTSO-E Communication & Connectivity Service Platform), EMS (Energy Management System) components for flexibility management, Sharemind for privacy preserving data exchange, KSI Blockchain technology stack and Black Lantern anti tamper hardware for cybersecurity, Big Data management components.

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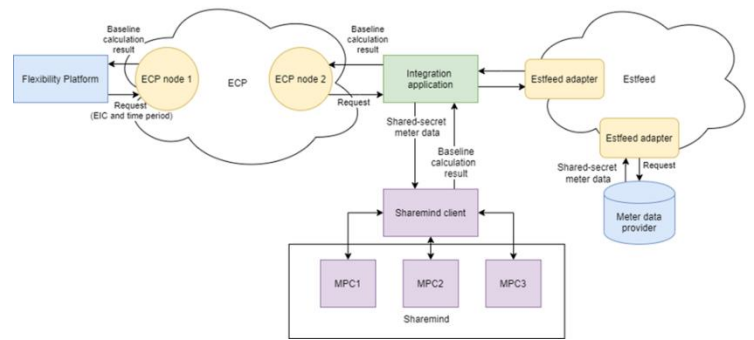
Key Achievements

- "Flexibility Platform" for prequalification, trading, activation and verification of any flexibility product connecting all FSPs and system operators
- "Affordable Tool" for smaller DSR units
- Cross-border metering data exchange
- Cross-sector data exchange integrating building information and metering data
- Integration of two separate Data Exchange Platforms (ECCo SP and Estfeed)
- Big Data Framework
- Concept of assuring process and log security developed
- CIM (Common Information Model) profiles elaborated and implemented for Flexibility Platform data model

Findings

To ensure interoperability of flexibility services, focus needs to be placed on data interoperability, next to harmonising regulatory/business processes. The developed solutions address homogeneous and secure data management through the concept of Data Exchange Platform.

DSR units can benefit from tools providing aggregation services, data services provided by DEP, and market services (e.g. bid submission, asset activation) provided by the Flexibility Platform.

Residents of one country are able to access their metering data, and share data with other stakeholders using services (e.g. consent management) provided by a DEP located in another country.

Cross-sector data exchange was demonstrated, which proposed a way to add value to users of one system (e.g. meter data hub) with data enrichment from another system (e.g. building register).

It would not take much effort to translate the original API implementation into a CIM compliant API, and to replace an existing API with a CIM compliant API.

Recommendations and Lessons

- Proper data management contributes to the flexibility market participation of stakeholders across the geographical borders forand of any asset.
- Proper tools for FSPs enable to actively bring smaller customers actively to the energy market
- AccelerateSpeeding upd the implementation of eIDAS (European Regulation on electronic IDentification, Authentication and trust Services) contributes to cross-border data exchange by making different authentication methods interoperable.
- Data providers and data users connected to different DEPs (ECCo SP, Estfeed) can exchange data by ensuring DEPthe interoperability of DEPs.
- Using dedicated privacy-preserving technologies, it is possible to preserve data owners' privacy without explicit consent.
- It is possible to integrate alternative signing mechanisms to the critical logs that provide information about the data exchange and participants.

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