

Platone Open Framework

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Architecture and Platforms

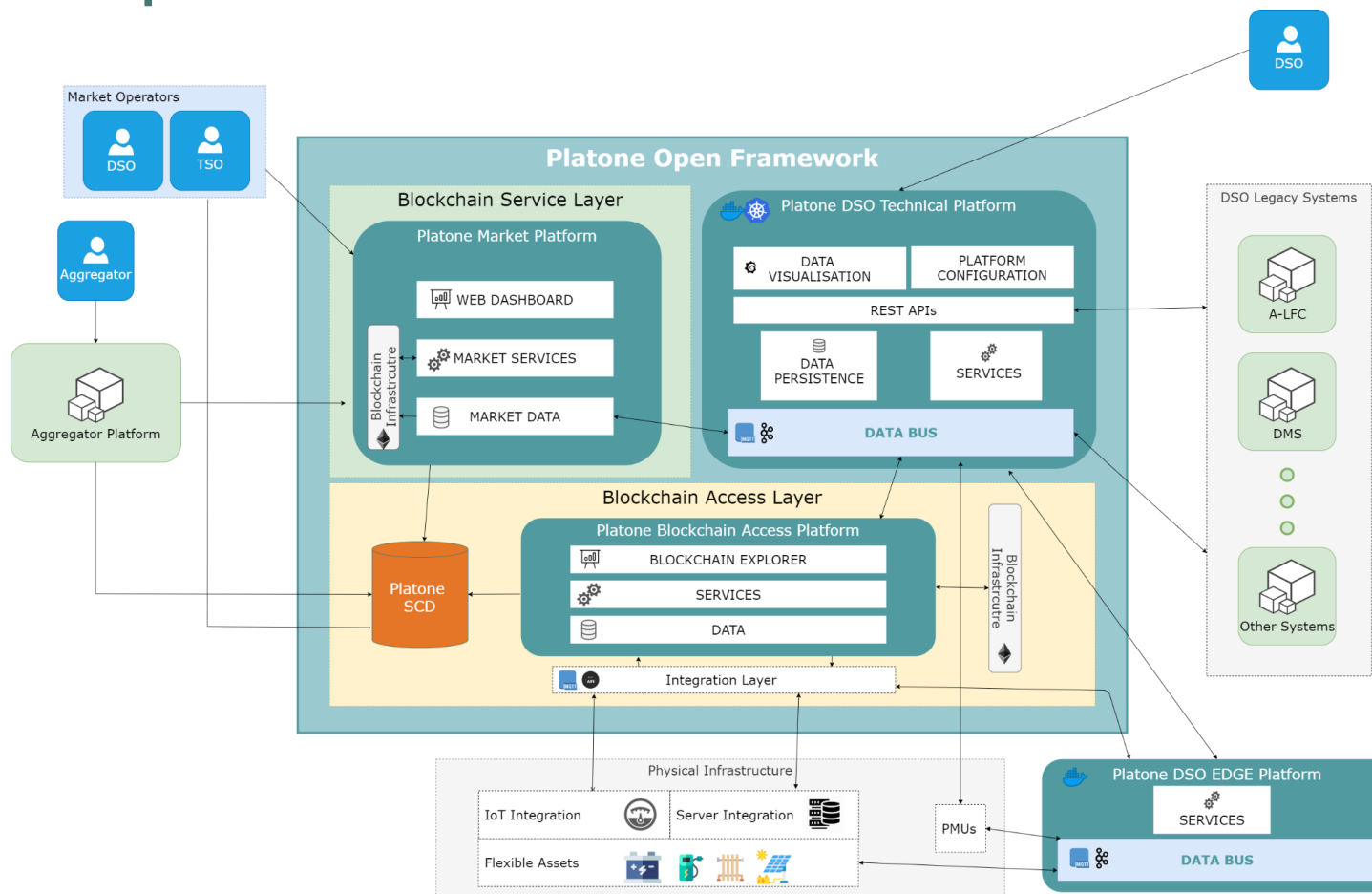
Platone open framework

GOAL: creating the ecosystem for new market mechanisms for a rapid roll out among DSOs and for a large involvement of customers in the active management of grids and in the flexibility markets

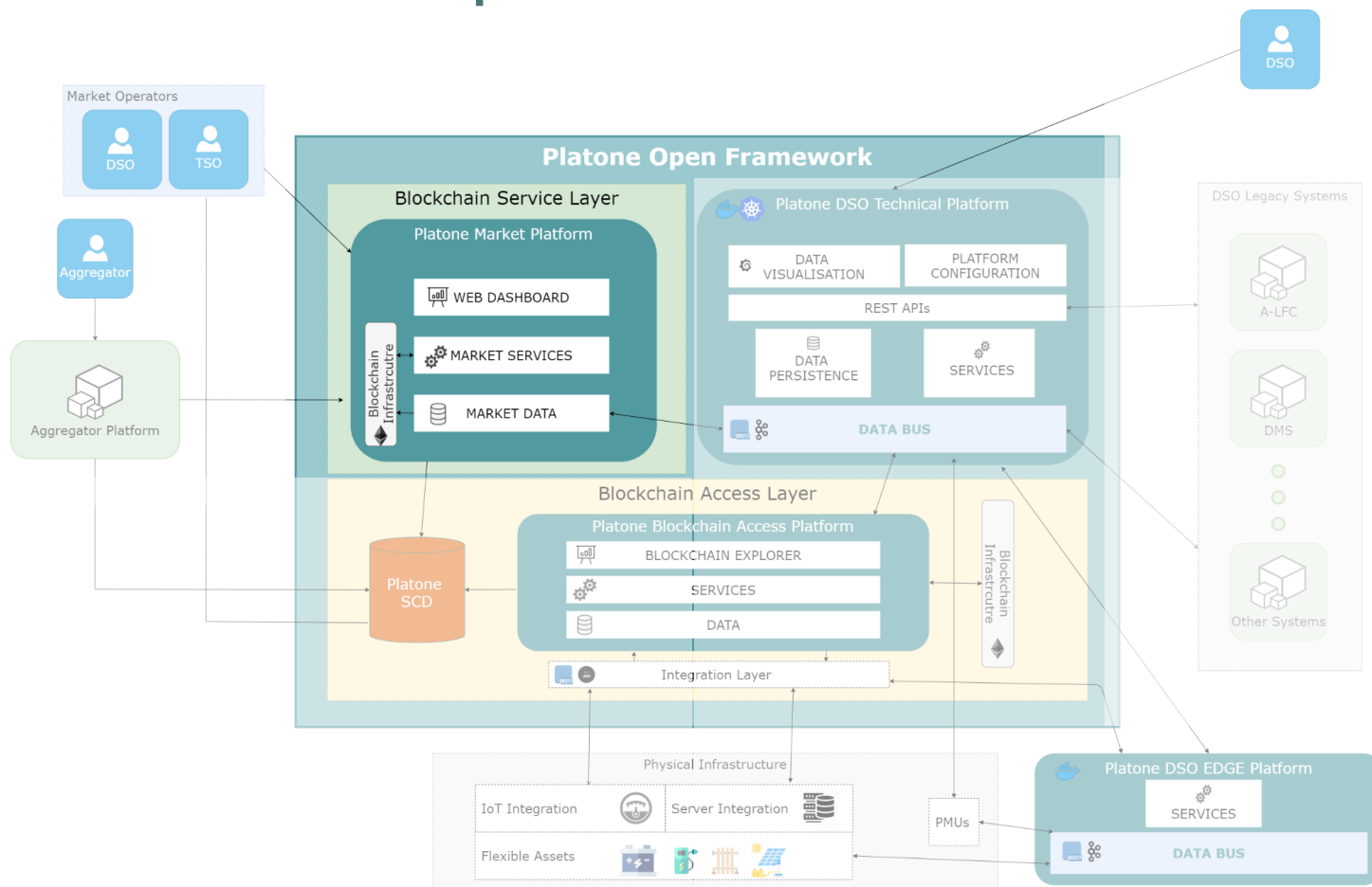
Platone framework is an open source framework based on blockchain technology that

- enables a secure and shared settlement data management
- allows standard and flexible integration of external solutions (e.g. legacy solutions)
- Is open to integration of external services through standardized open application program interfaces (APIs)

Platone interoperable architecture



Focus: Platone market platform

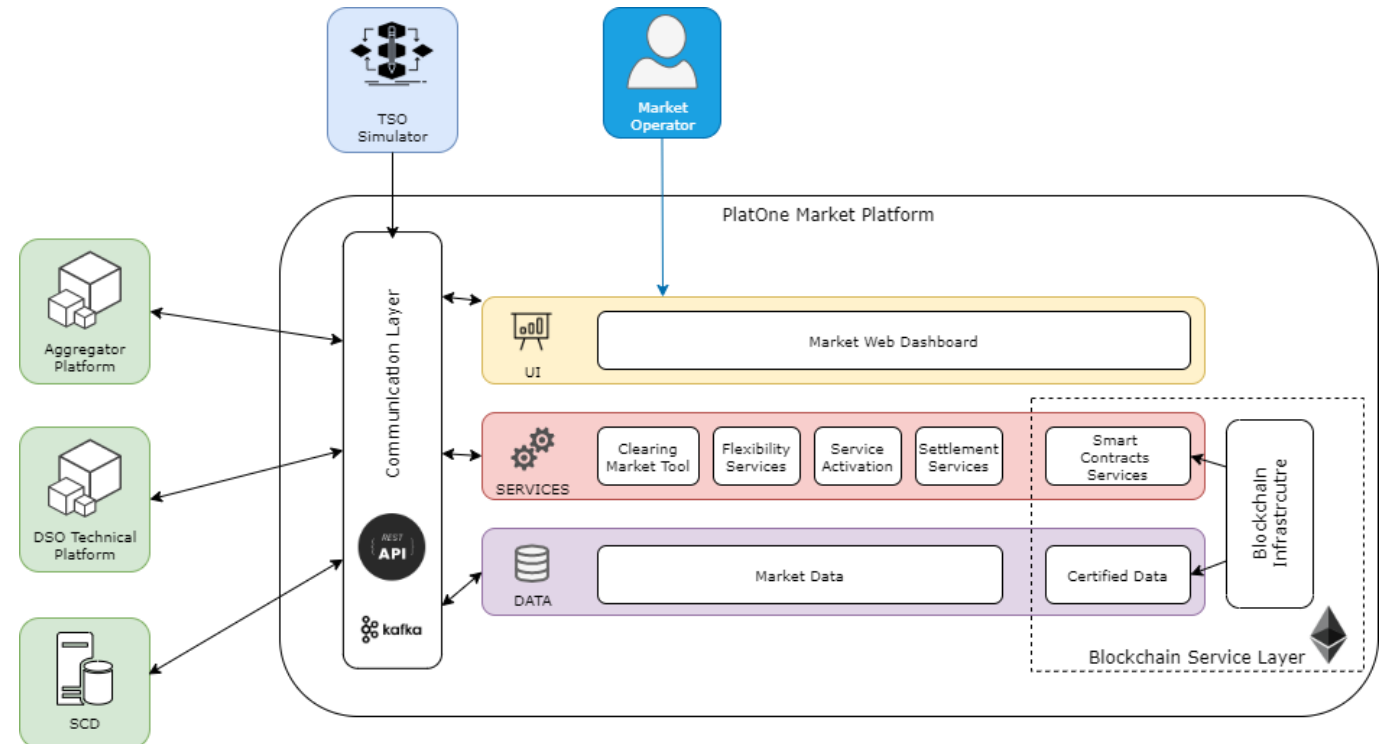


Platone market platform

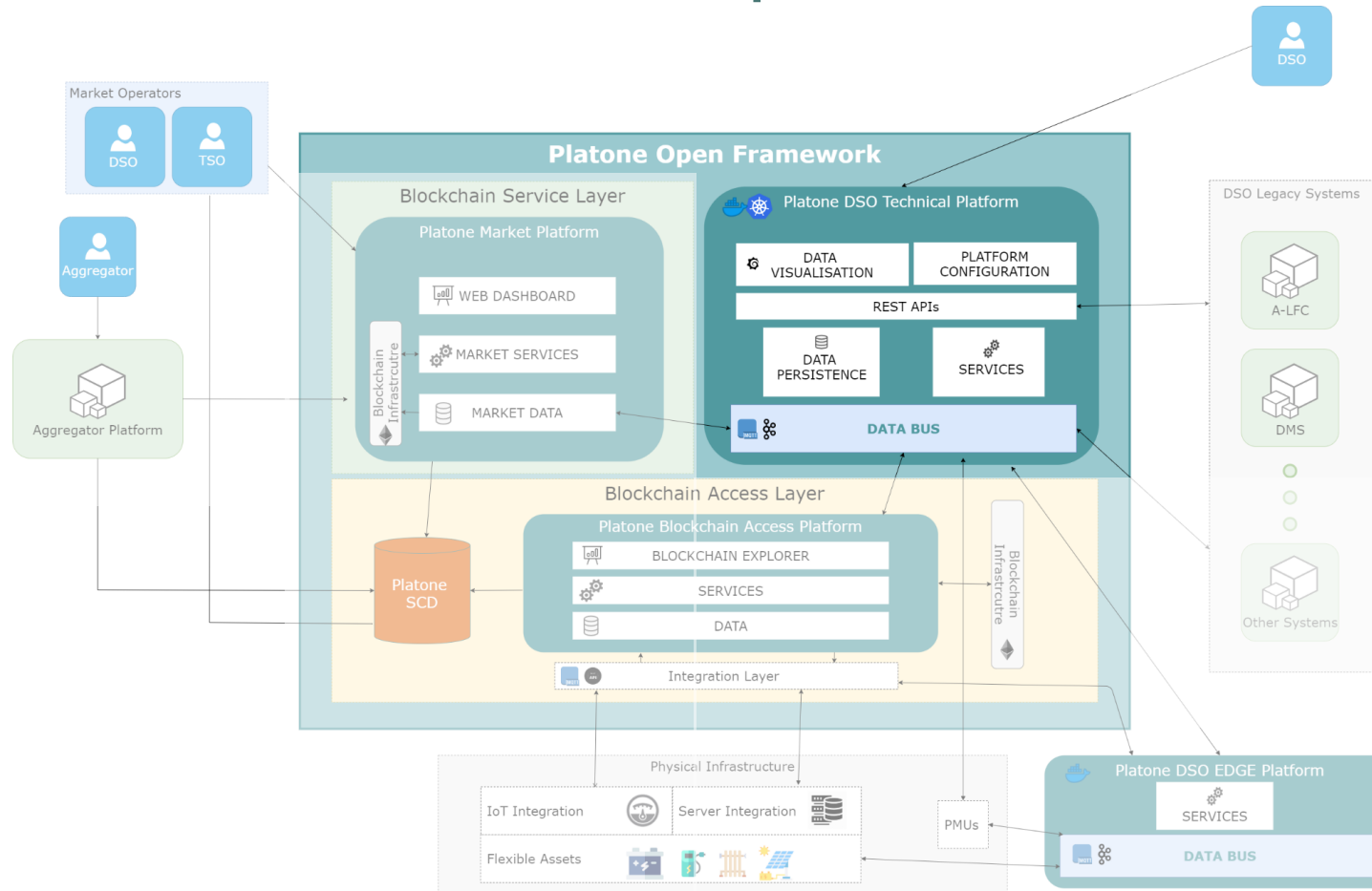
Blockchain service layer: enables the deployment of different blockchain-based components, providing a blockchain infrastructure and Smart Contracts services

Platone Market platform: it supports wide geographical area flexibility requests from TSOs and local flexibility requests from DSOs. These are matched with offers coming from aggregators resolving conflicts according to pre-defined rules of dispatching priorities.

All the **market operations** are **registered and certified within the blockchain service layer**, ensuring a transparency, security and trustworthiness among all the market participants.



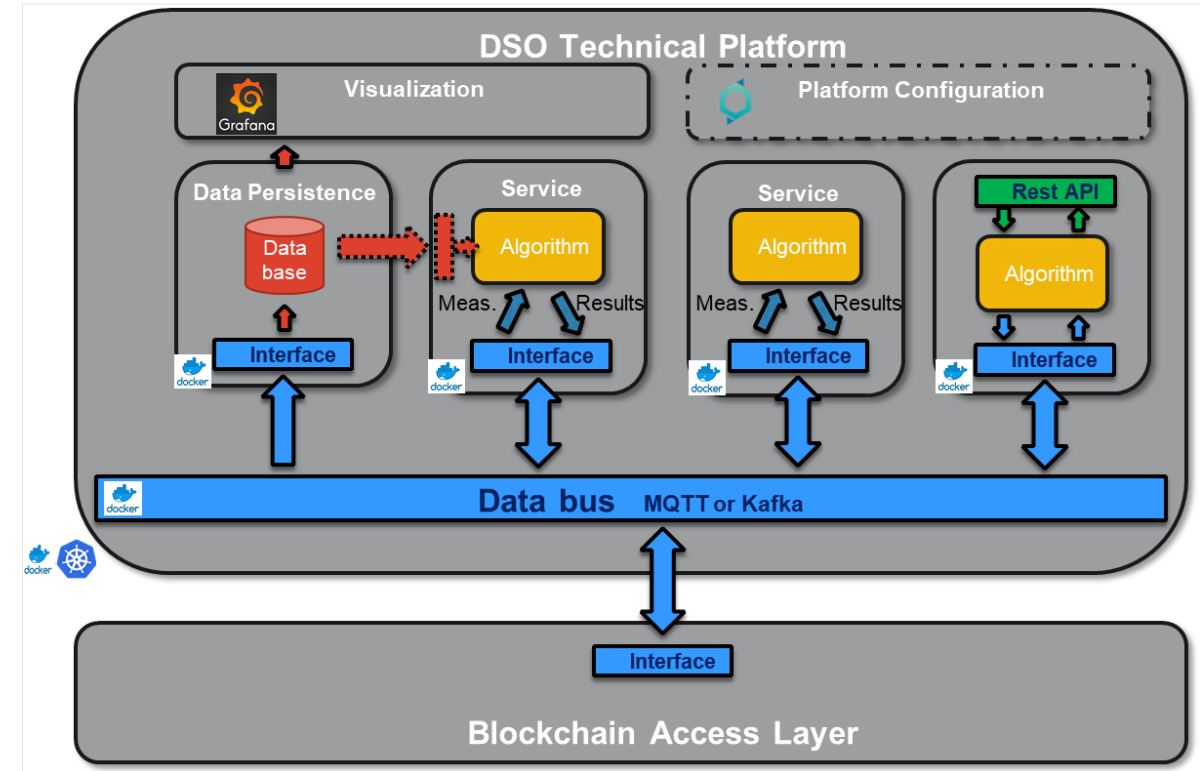
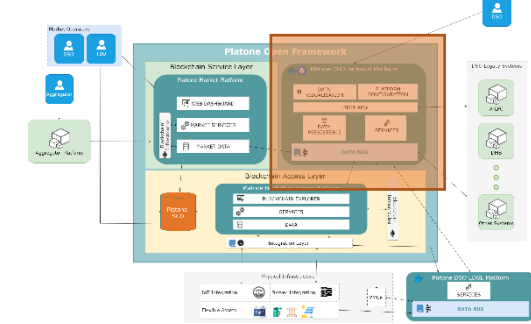
Focus: Platone DSO technical platform



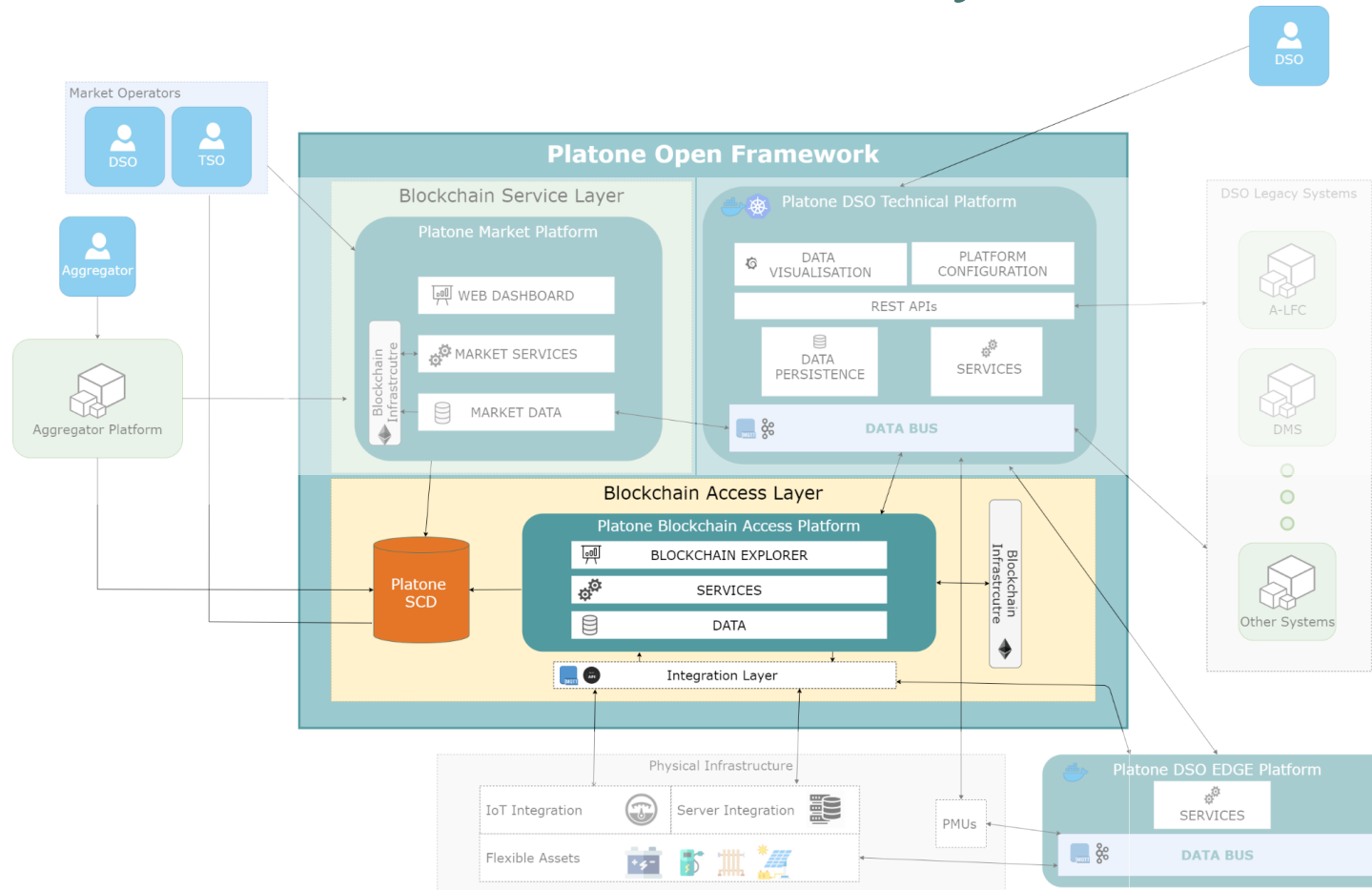
Platone DSO technical platform

- based on an open-source extensible microservices platform
- allows DSOs to manage the distribution grid in a secure, efficient and stable manner

The Data Bus layer: Included on the DSO Technical Platform and allows integration both of other components of Platone framework (e.g. Blockchain Access Layer) and of external components (e.g. DSO Management System) with a direct connection to the classical supervisory control and data acquisition (SCADA) system adopted by the DSO served by standard communication protocols.



Focus: Platone blockchain access layer

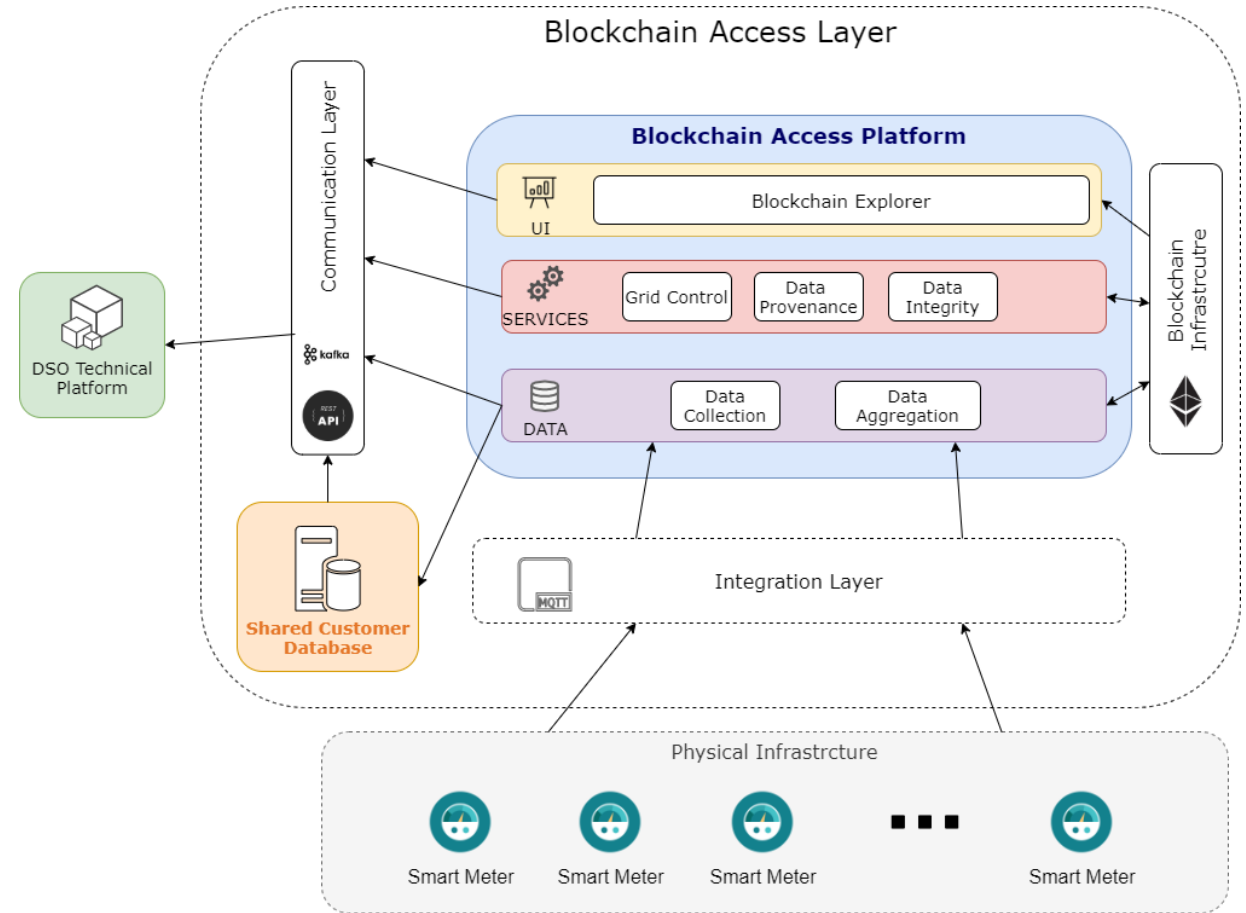


Platone blockchain access layer

Blockchain access layer: adds a further level of security and trustworthiness to the framework. It is an extension of physical infrastructure and performs data certification and automated flexibility execution through Smart Contracts.

Platone Blockchain Access platform: it implements all the functionalities offered by the blockchain technology through smart contracts and provide an interface for the integration of the data coming from metering and customer's infrastructure

Platone Shared customer database: it contains all the measurements, set points and other needed data collected from customer physical infrastructure. It allows the access to the data in an easy and shared way without compromising security and privacy.



Platone Open Framework Integration

Adoption of Platone platforms

	Platone Market Platform	Platone DSO Technical Platform	Platone Blockchain Access Layer	
			Shared Customer Database	Blockchain Access Platform
Italian Demo	X	X*	X*	X*
German Demo		X	X	X
Greek Demo		X		X

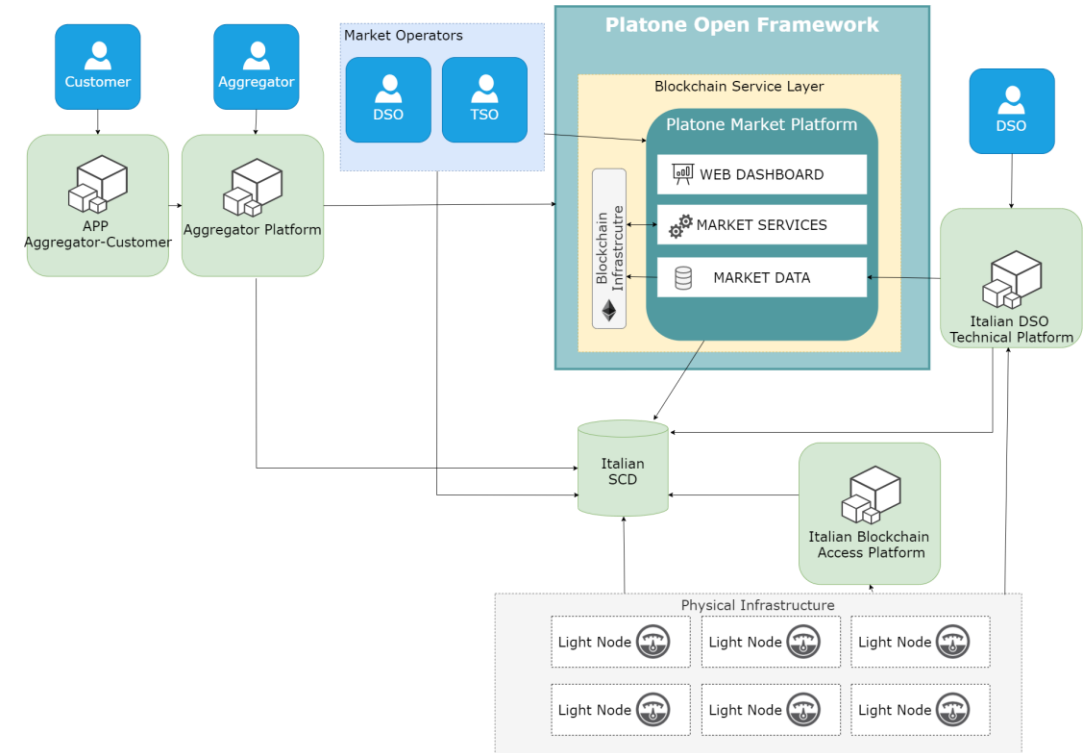
* Italian Demo Version

Italian demonstration

Italian Demo aims to **realise an end-to-end flexibility market co-operated by TSO and DSO to enable customers** to provide ancillary services to transmission and distribution grids (focusing on grid state analysis procurement, activation and settlement) in the day-ahead and real time flexibility market.

In the Italian demo **Platone Market Platform** is in charge to:

- gather and match the flexibility requests and offers
- provide the market outcomes
- perform the settlement phase via smart contracts and tokenization
- certify all the market data in the blockchain service layer

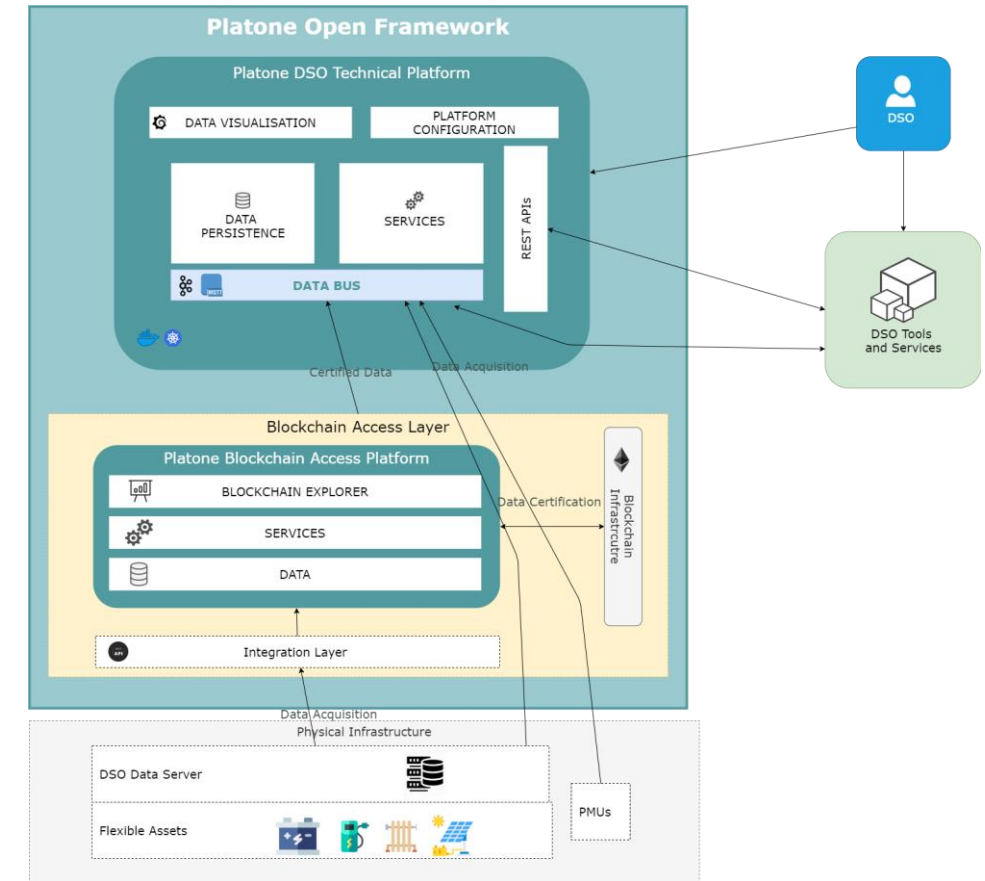


Greek demonstration

The principal goals of Greek demo is to allow DSO to achieve **better observability of the distribution network** via an advanced SE tool and whether adopting variable network tariffs, **enables a more efficient operation of the distribution network** or even the provision of ancillary services to the TSO by the end users of the distribution network.

DSO Technical Platform is the IT environment that includes all the tools and services that enable advanced monitoring and control of the grid.

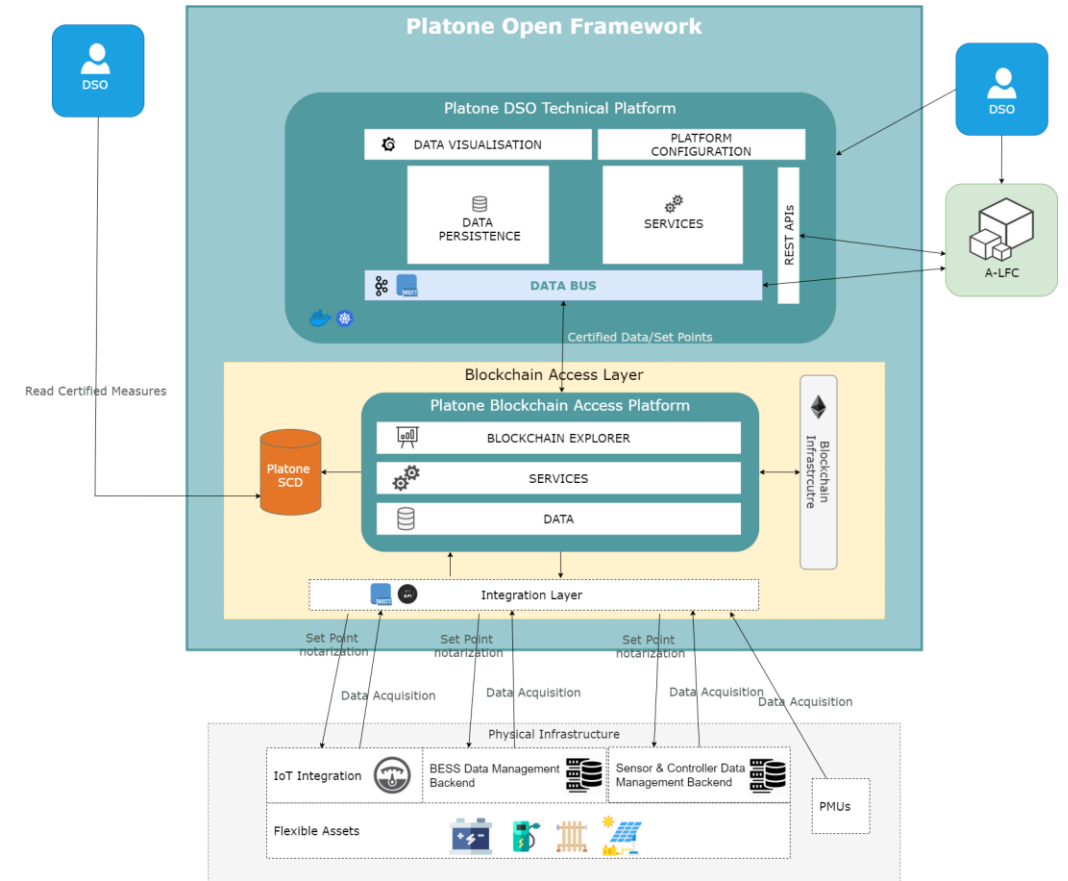
Blockchain Access Platform is on charge to certify measurements and customer data.



German demonstration

German Demo architecture foresees the integration of the EMS (named Avacon Local Flex-Controller) with the Platone framework, with the main goal of monitor and balance a local network and implement new strategies of energy supply.

The ALF-C will be integrated in the **Platone DSOTP** for **monitoring** the Local Energy Community's generation, demand and available flexibility and **send set points** to local storages and flexible loads to fulfil requests set by the user. These systems, in turn, will be connected to **Platone BAL** for **the certification of the measurements**.



Platone platforms deployment

SaaS

Hosted in cloud

Vertical Tenant (virtually
separated context)

Individual services offer

**Packaging
Delivery**

**Packaged as Docker
Container**

Installed on premises
(demo infrastructure or private
cloud infrastructure)

Thank you!

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