GWS
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GWS Industrial IoT platform

GWS IIoT Platform – a quick summary

1 The platform allows to pool all industrial data in order to maximize the economic benefit of using IIoT technologies, ML and modern functional architecture of apps

2 Utilizing the platform drastically increases the speed of creating and implementing the industrial applications, including MES

3 Microservice architecture allows using solutions from various developers while maintaining common traceability of the processes

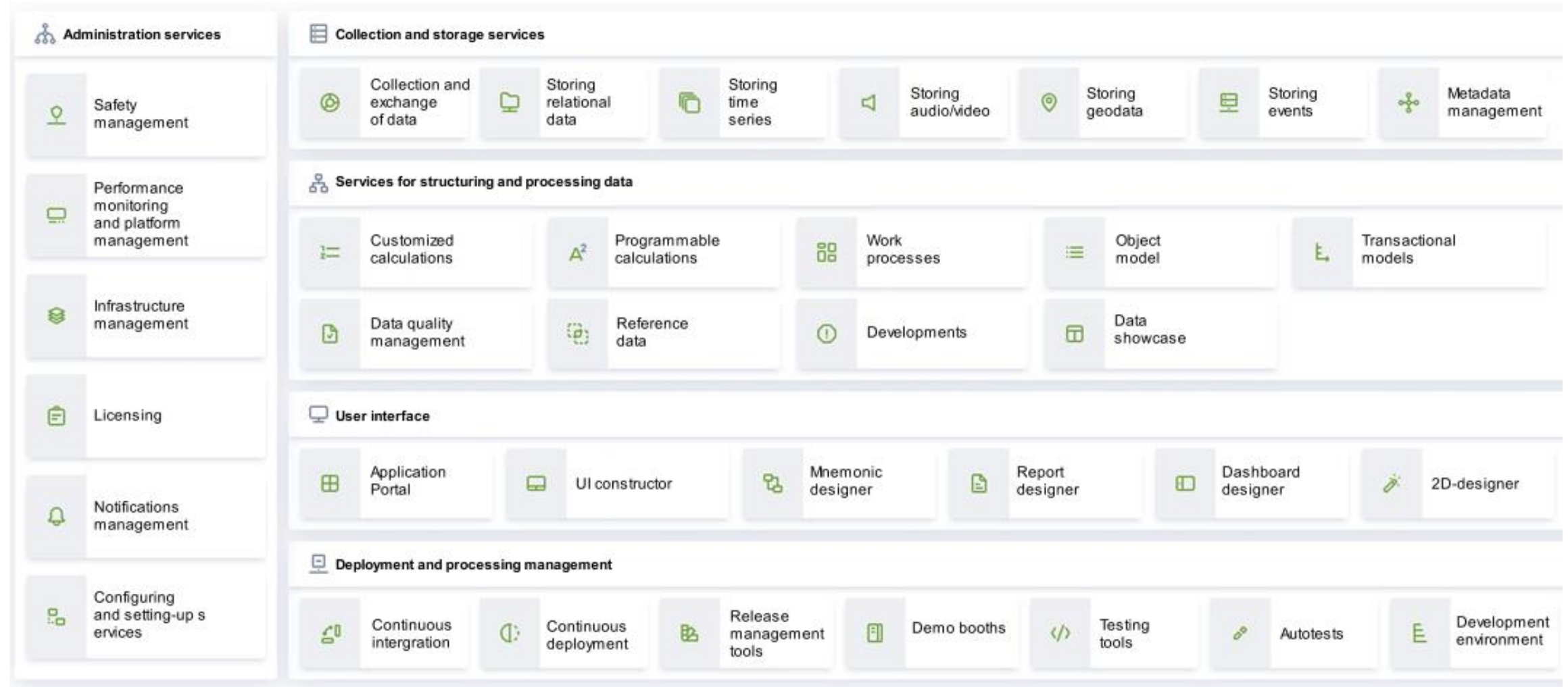**GWS** | **Industrial IoT Platform**

ADVANTAGES
1. Control over the source code
2. Unified object model
3. Wide connectvivity
4. Unified data space
5. Unified interfaces with data sources
6. Base of data infrastructure (same as OSISoft/Siemens)
7. ML infrastructure
8. PAAS/SAAS models
9. Cloud infrastructure support
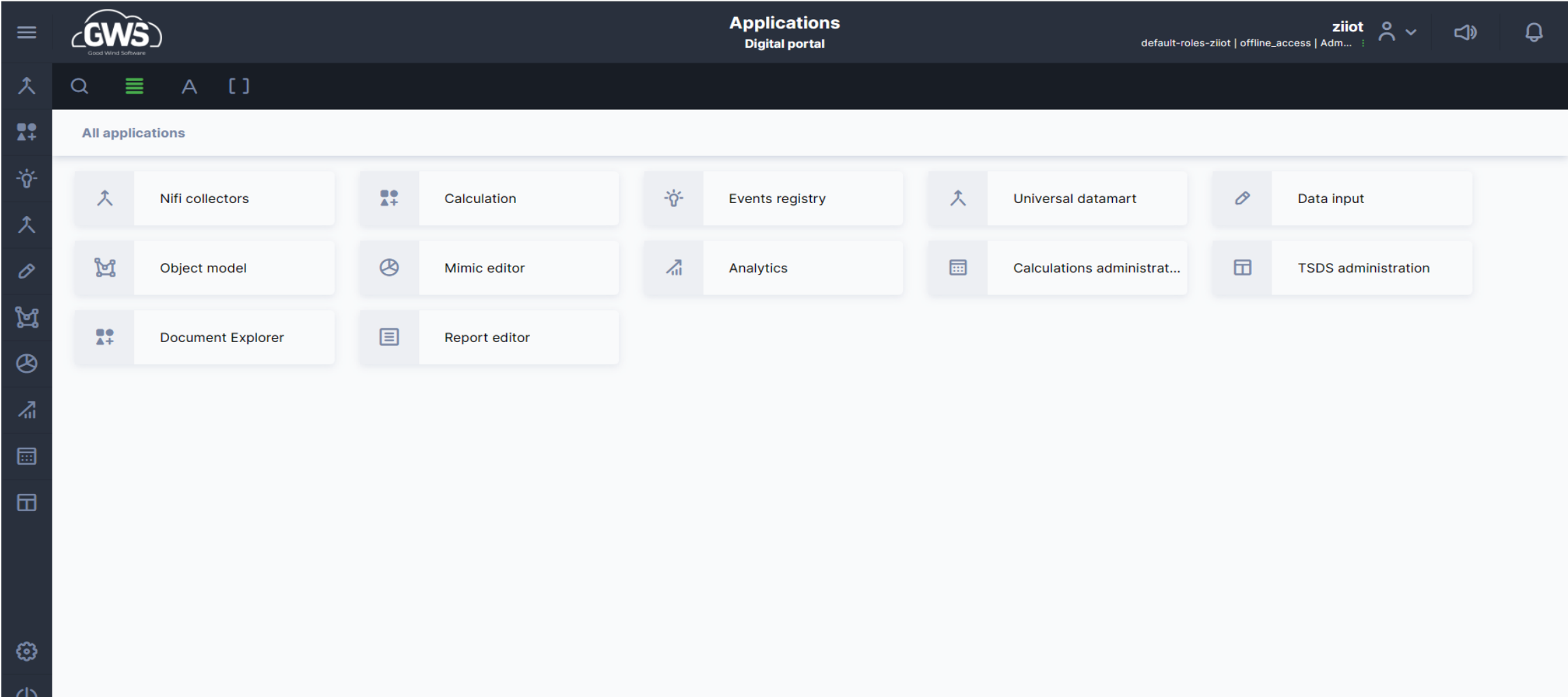10. Development speed

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GWS IIOT
Functional structure

Administration services
- Safety management
- Performance monitoring and platform management
- Infrastructure management
- Licensing
- Notifications management
- Configuring and setting-up services

Collection and storage services
- Collection and exchange of data
- Storing relational data
- Storing time series
- Storing audio/video
- Storing geodata
- Storing events
- Metadata management

Services for structuring and processing data
- Customized calculations
- Programmable calculations
- Work processes
- Object model
- Transactional models
- Data quality management
- Reference data
- Developments
- Data showcase

User interface
- Application Portal
- UI constructor
- Mnemonic designer
- Report designer
- Dashboard designer
- 2D-designer

Deployment and processing management
- Continuous intergration
- Continuous deployment
- Release management tools
- Demo booths
- Testing tools
- Autotests
- Development environment

GWS home screen

Data collection
Interfaces, normalization, compression, incoming signal fault tolerance

Key advantages

- Great integration opportunities
- Flexibility for customization of the data collection process
- Clustering of data collection collectors
- Guaranteed data delivery

Data collection interfaces

- GE Historian
- OPC DA 1.0/2.0/3.0
- OPC HAD
- OPC AE
- OPC UA
- OSISoft PI

- System
- RDBMS
- Text file
- RTDB
- Simulation
- SNMP
- Modbus

Data collection
Interfaces, normalization, compression, incoming signal fault tolerance

Data-flow and out of the box calculations

Types of computations

- Data pre-processing prior to saving time series
- Data-flow calculations of time series integral values (minutely, hourly, daily data)
- Calculation of measurement derivatives based on collected time series data (recalculation of weights, volumes, densities)
- Calculation of rules for generation of alarms and events

Key advantages

- Random computation algorithms
- Connection of third-party libraries
- Horizontal scaling
- Recalculations on historical data

Data-flow and out of the box calculations

Time series storage
Data cache, hot/cold storage

Event and notification management
## Settings of a notification template

Security
General diagram of a security system

Key advantages

- Single sign-on for all SSO apps

- Integration with AD for convenient support

- Setting of roles in AD

- Two mutually supportive models of access restriction

- A role model determines what functions are accessible for the user

- A resource model determines what rights the user has for a particular resource

- Encrypted delivery channels
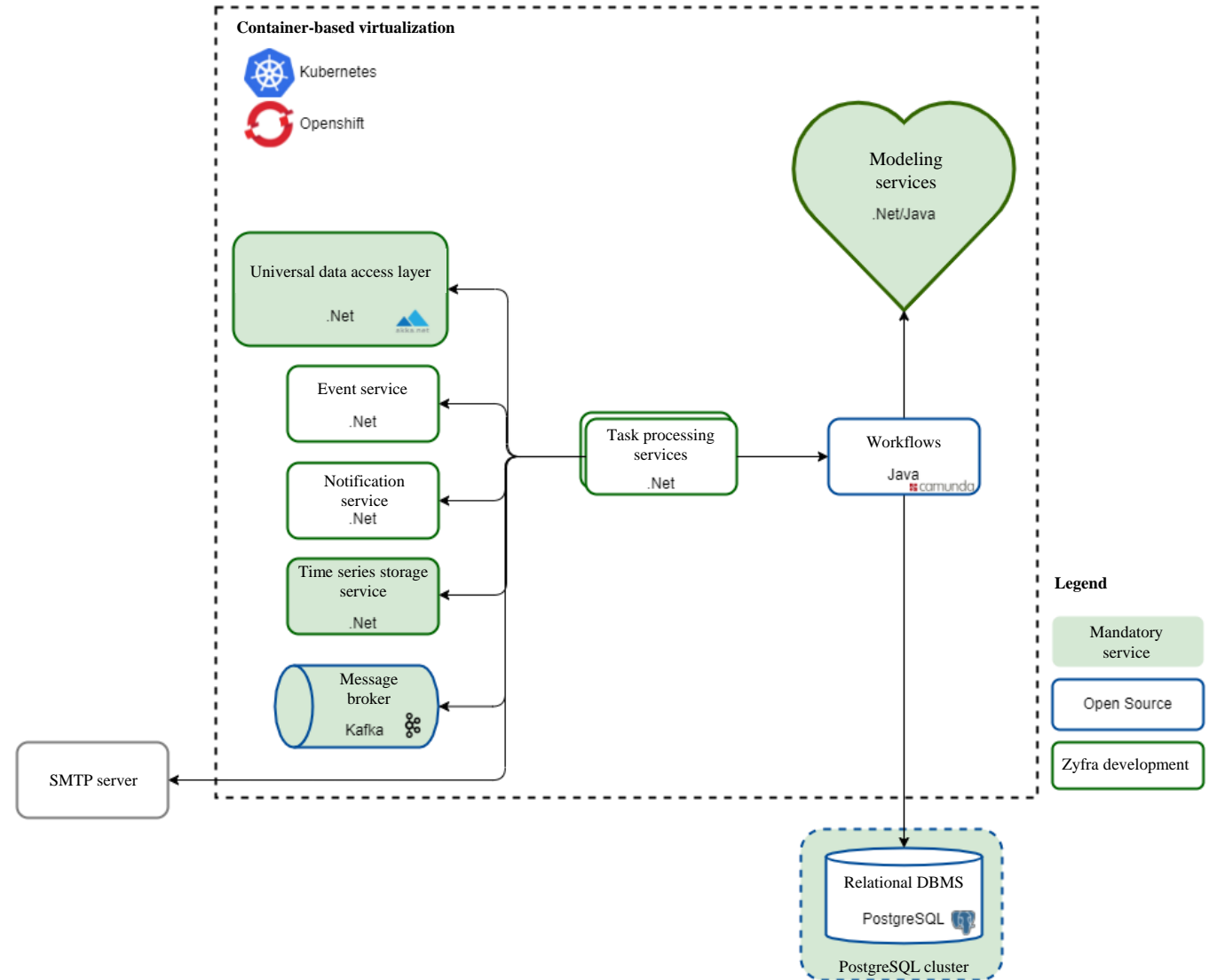
- Signed authorization tokens
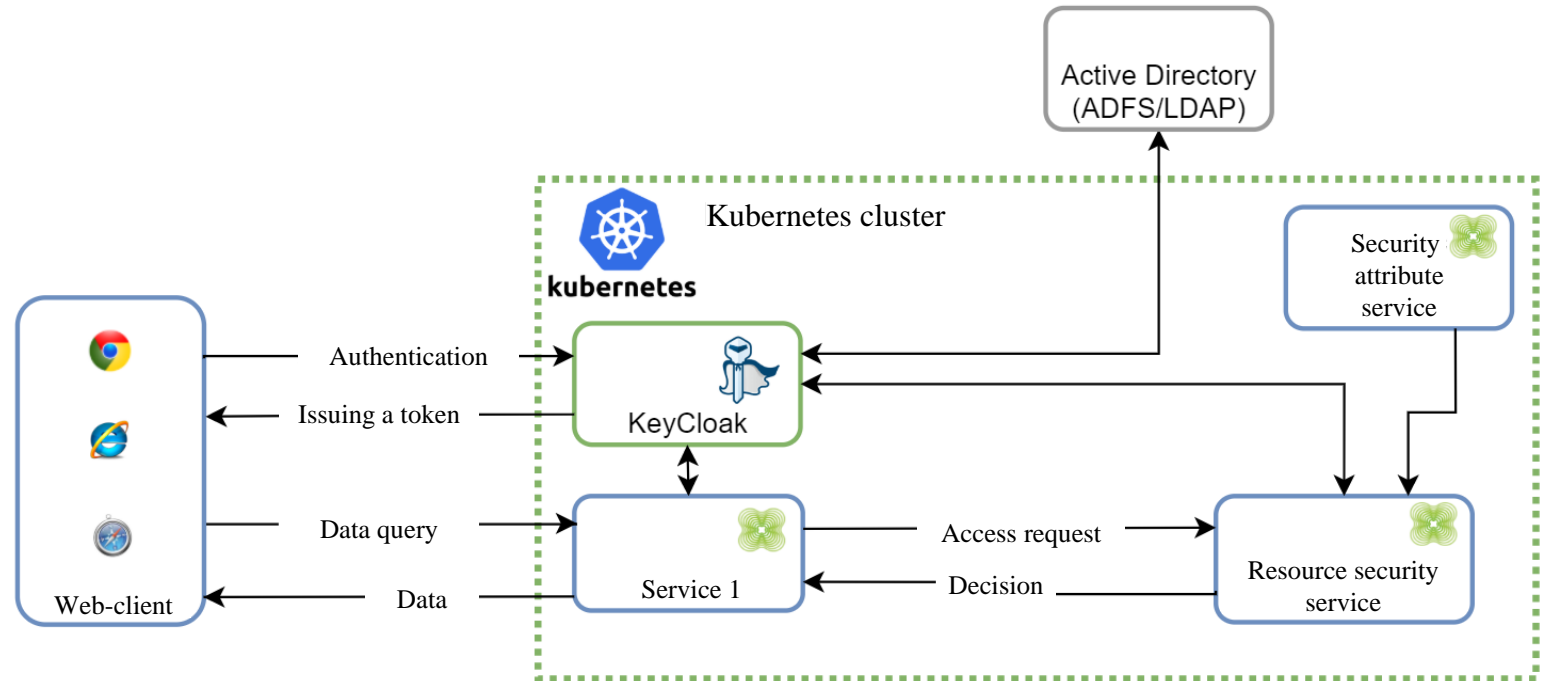
Workflow management
General diagram of the workflow management system

Key advantages

- Creating a process without coding

- Support of BPMN 2.0 and DMN 1.0 standards

- Capability of integrating by various protocols

- Integration with security services for flexible access control

- Capability of being embedded in services for logic control

Container-based virtualization

Kubernetes

Openshift

Modeling services

.Net/Java

Universal data access layer

.Net

Event service

.Net

Task processing services

.Net

Workflows

Java camunda

Notification service

.Net

Time series storage service

.Net

Message broker

Kafka

SMTP server

Legend

Mandatory service

Open Source

Zyfra development

Relational DBMS

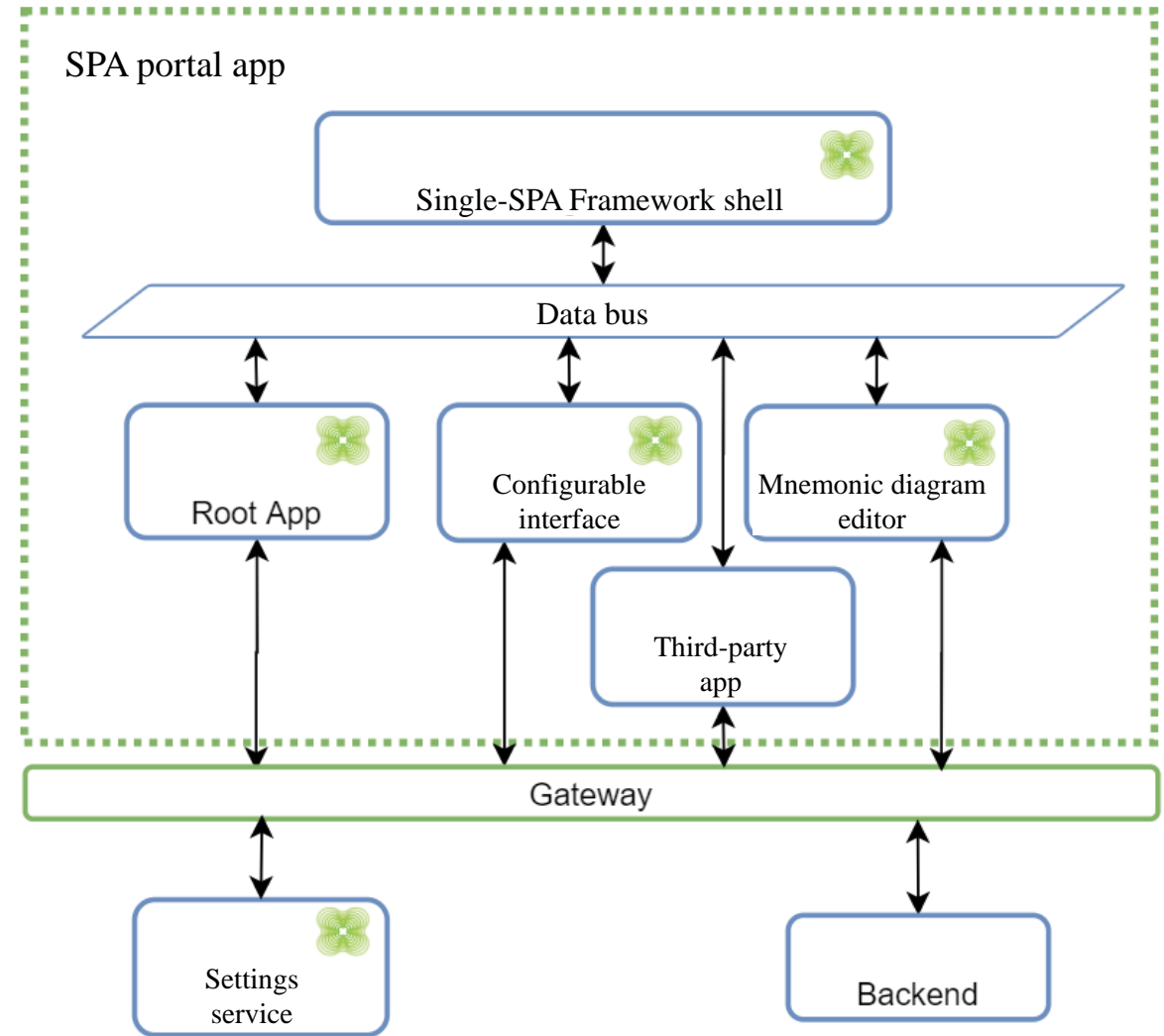PostgreSQL

PostgreSQL cluster

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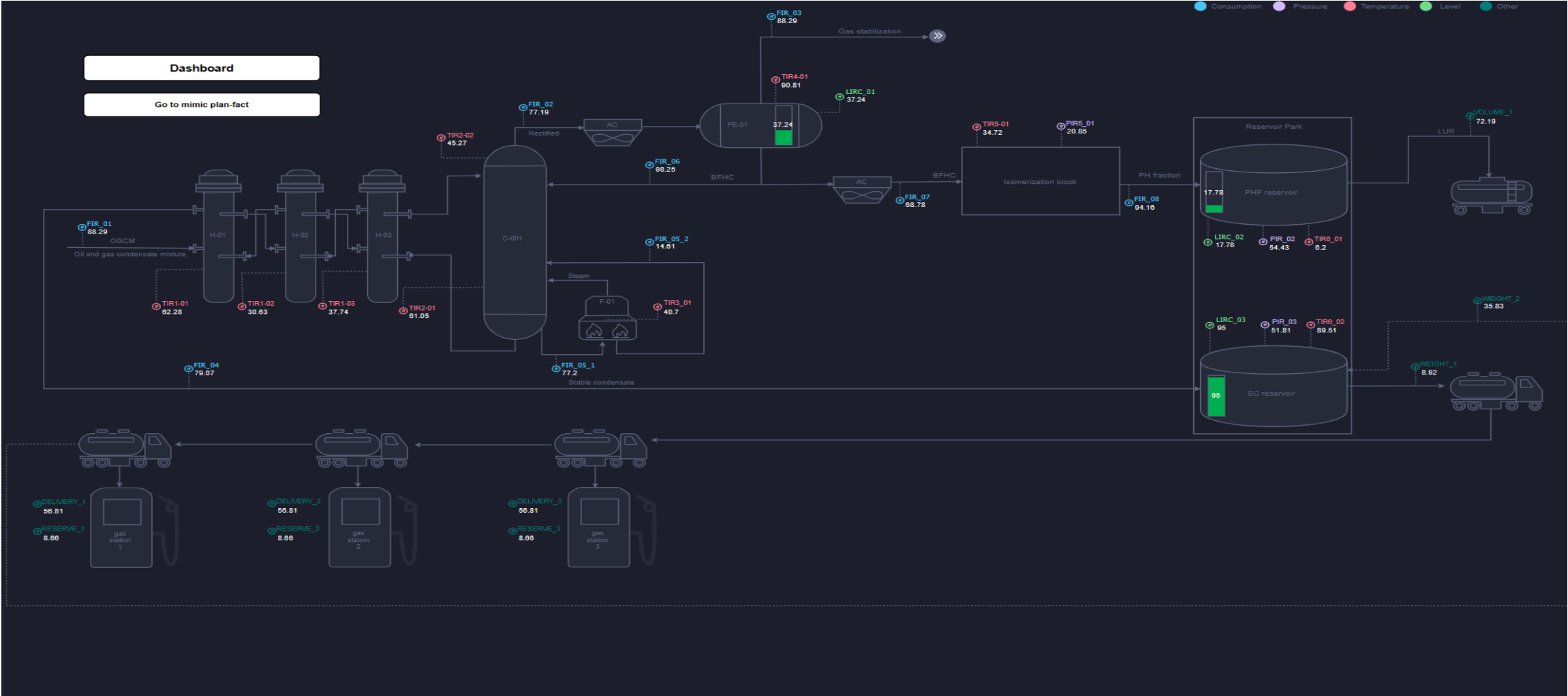# Visualization (web portal)
General diagram

Key advantages

- Embedding business apps including third-party ones

- Common data for all apps

- Support of system and user settings

- Catalogue of apps capable of separating into private and public ones
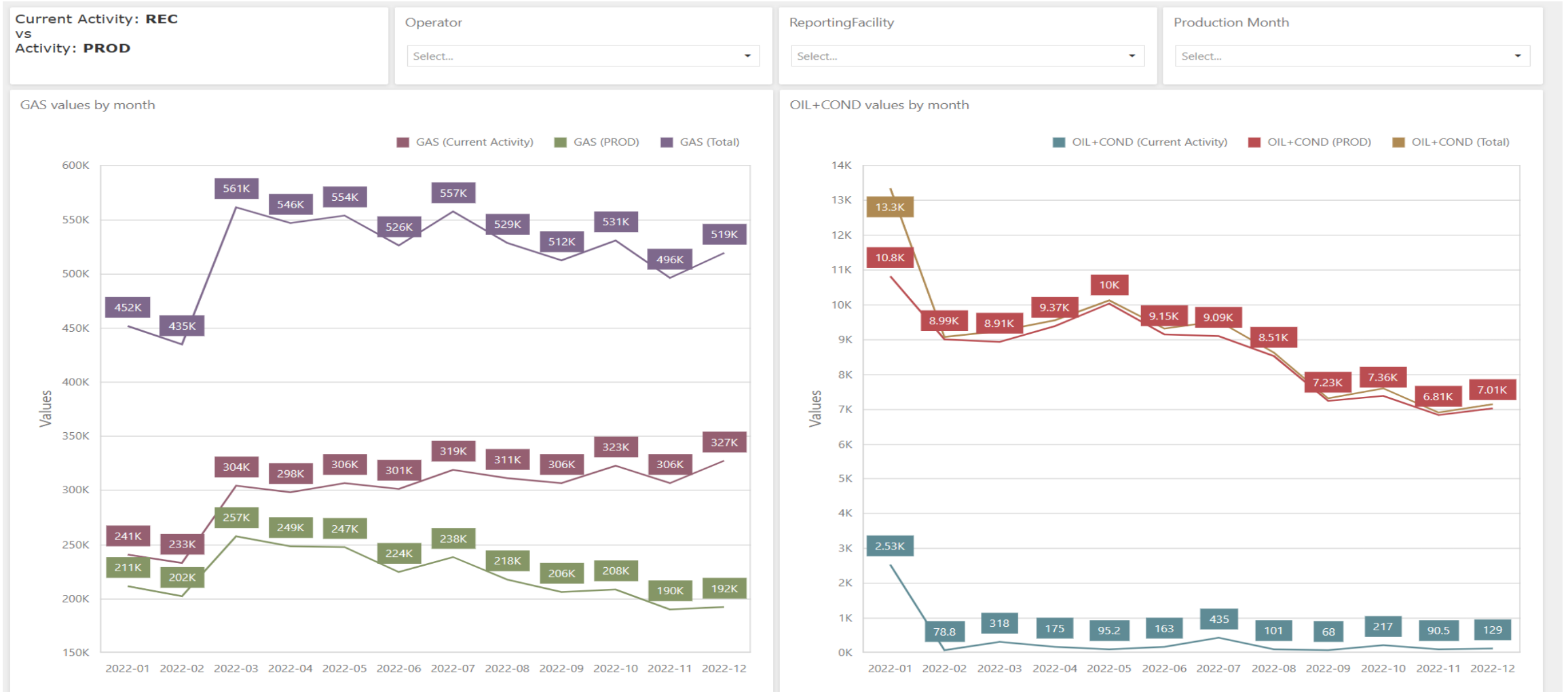
Visualization: HMI
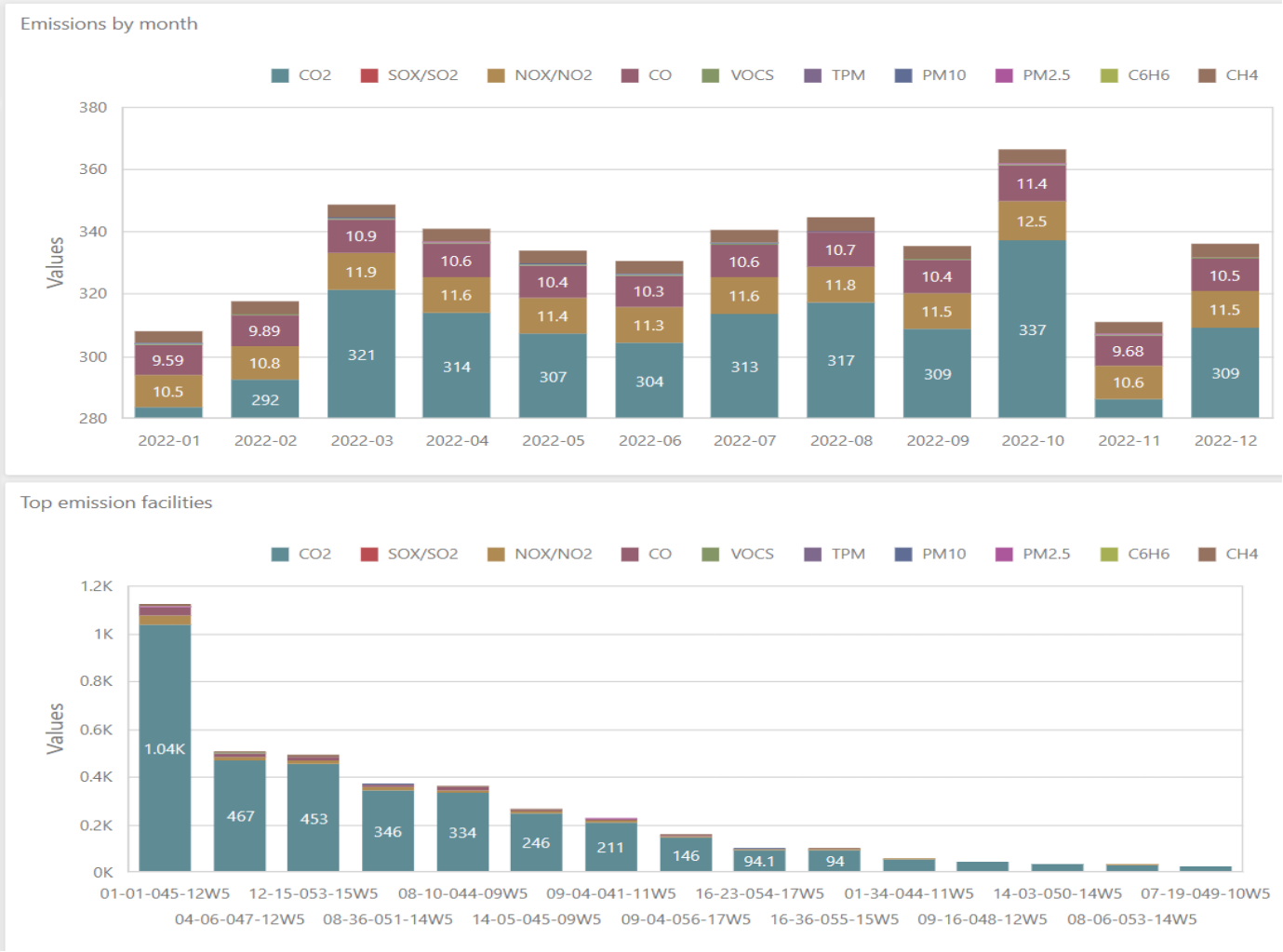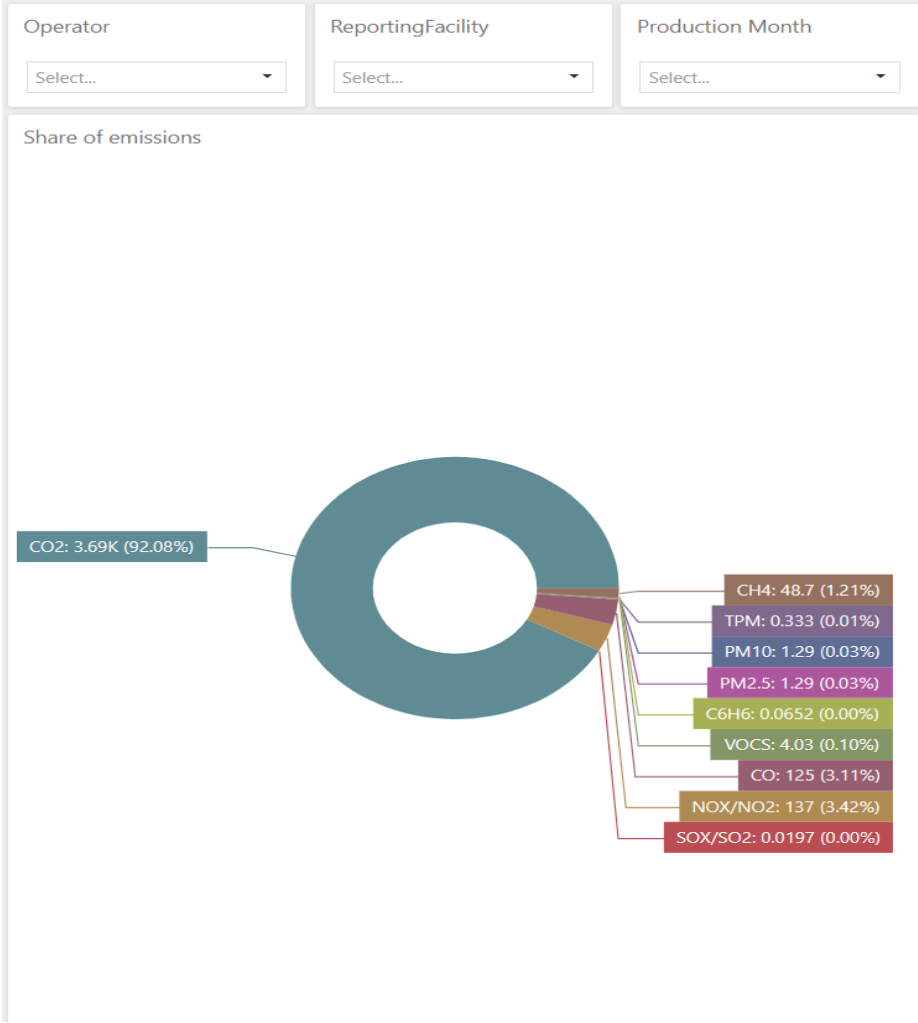
Visualization: dashboards

Visualization: dashboards

Visualization: dashboards

Visualization: reports

Plant material flows	Plan, t	Fact, t	Fact (instant), t/h	Shift 1, t	Shift 2, t	Rel. deviations, %	Abs. deviations, t
PSA production plan-fact							
				PSA			
RAW							
Raw mix	25.05	8.96	82.24	6.81	60.91	25.05	8.96
TOTAL RAW MATERIALS	82.24	72.57	72.57	77.61	54.97	34.26	23.42
PRODUCTS							
Hydrogen	73.63	34.26	73.63	52.47	77.61	28.8	64.27
Stripping gas	23.42	28.8	8.53	31.74	69.21	43.47	72.57
TOTAL PRODUCTS	64.27	43.47	77.9	23.56	25.05	31.74	54.97
UNBALANCE	30.8	5.47	37.17	36.54	8.96		

Stabilization Column mimic

Visualization: reports

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