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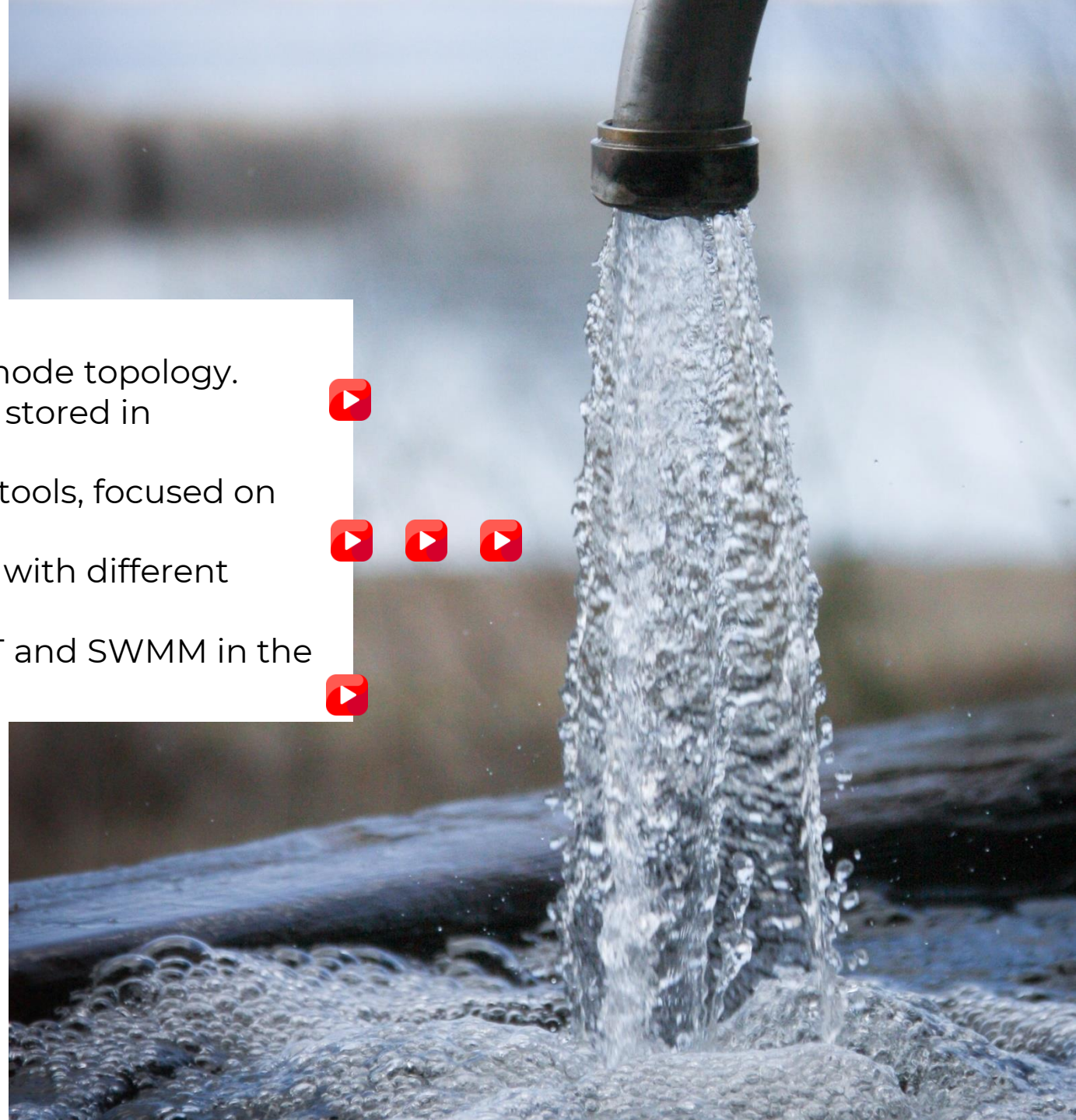
OPEN GIS & WATER SOLUTIONS

# Water Utilities GIS solution powered by Giswater

# TECHNOLOGY & ARCHITECTURE


# MAIN ISSUES

- Complete inventory of the network with arc-node topology.
- DB centric: The data and much of the logic is stored in PostgreSQL.
- Easy-to-use query, maintenance and editing tools, focused on water networks.
- Unlimited number of users, grouped by roles with different capacities.
- Hydraulic modeling capabilities with EPANET and SWMM in the same GIS environment.



# MINIMUM CUT

Tool for calculating the affected network in the event of leak in the network

**The result shows the affected pipes, connections and subscribers, as well as establishing which valves will have to be closed to execute the cut.**

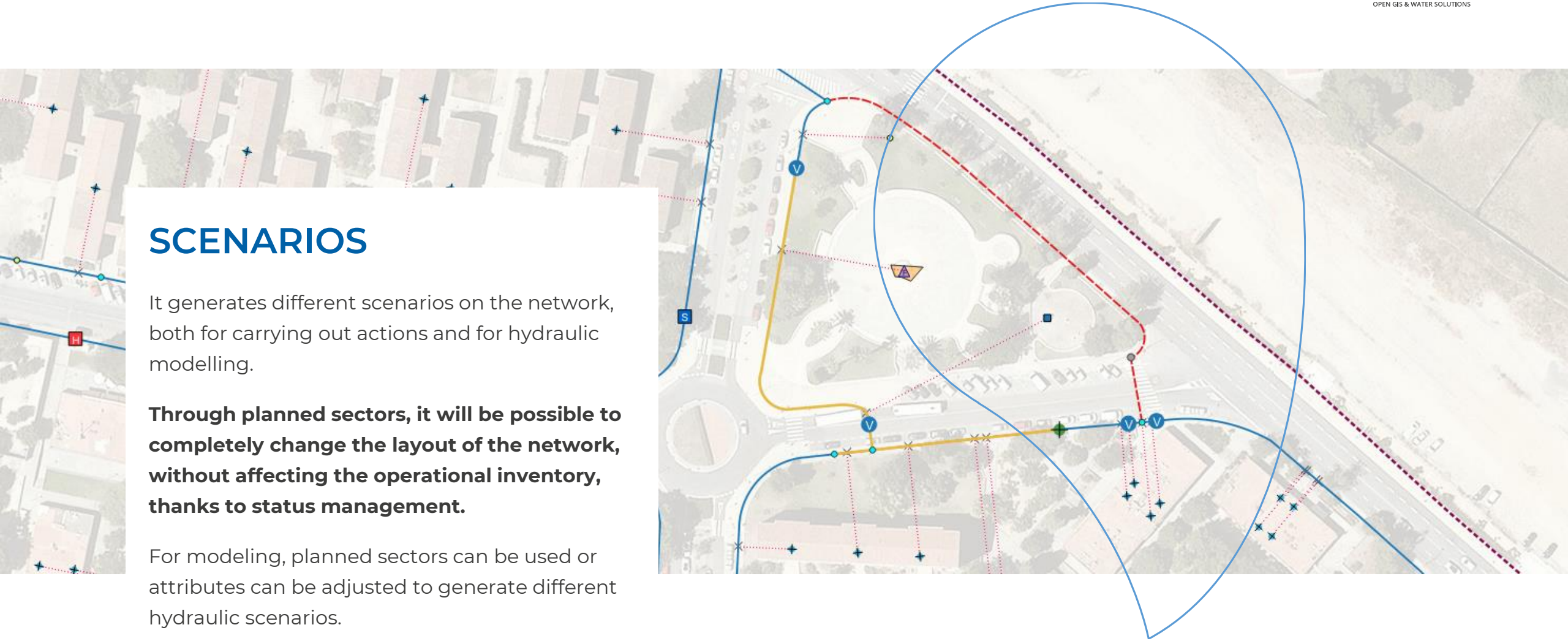
Through an dialog (manager), planned and completed works can be consulted, allowing results to be obtained on historical effects.

# SCENARIOS

It generates different scenarios on the network, both for carrying out actions and for hydraulic modelling.

**Through planned sectors, it will be possible to completely change the layout of the network, without affecting the operational inventory, thanks to status management.**

For modeling, planned sectors can be used or attributes can be adjusted to generate different hydraulic scenarios.

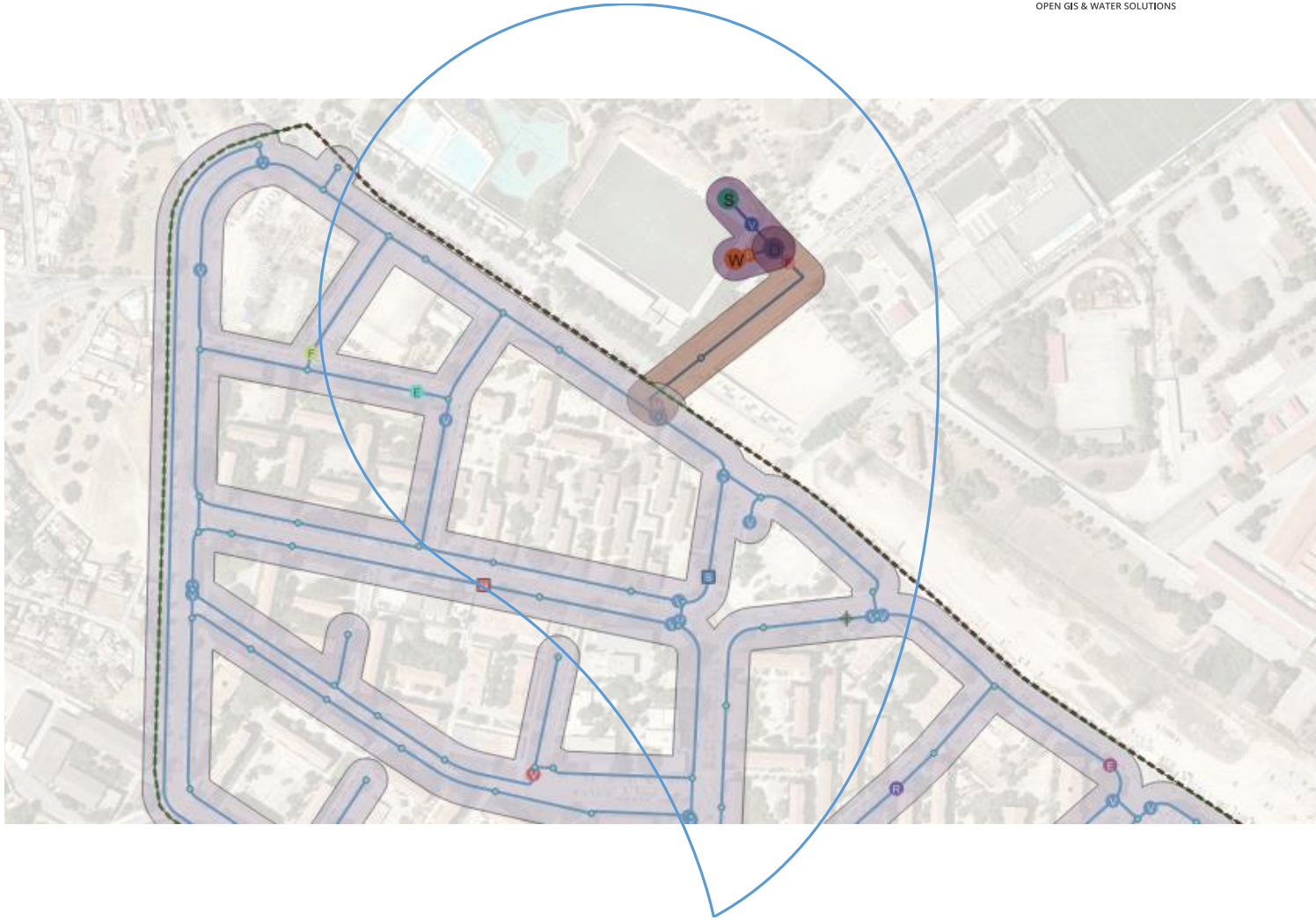


# DYNAMIC ZONIFICATION

Through a sectorization algorithm, the different functional zones of the map can be dynamically updated.

**The measurement zones (DMA), the hydraulic sectors (SECTOR) and the pressure zones (PRESSZONE) can be calculated through this process.**

You simply need to configure which are the header elements of each one of the zones. The affected network will take the attribute of the zone to which it belongs.

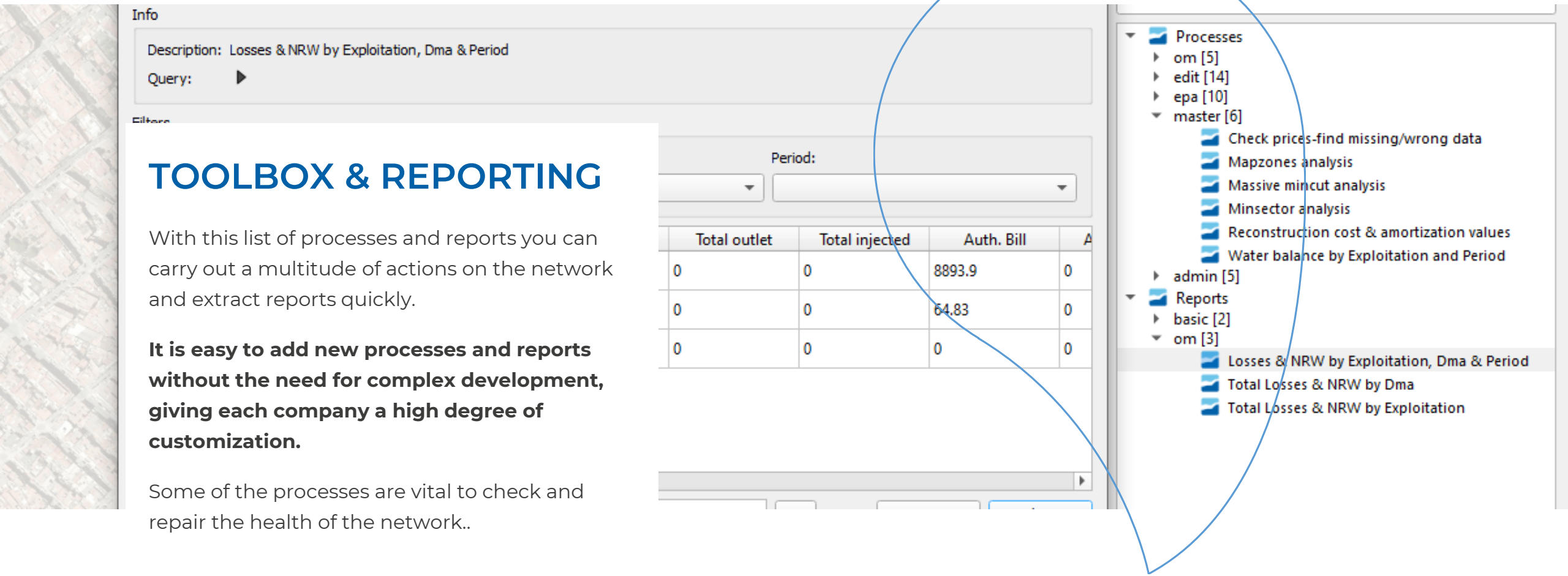


# TOOLBOX & REPORTING

With this list of processes and reports you can carry out a multitude of actions on the network and extract reports quickly.

**It is easy to add new processes and reports without the need for complex development, giving each company a high degree of customization.**

Some of the processes are vital to check and repair the health of the network..



# O&M FIELD WORK

The data model allows the insertion of data for operations and maintenance visits or inventory validation, to be captured directly in the field with a mobile device.

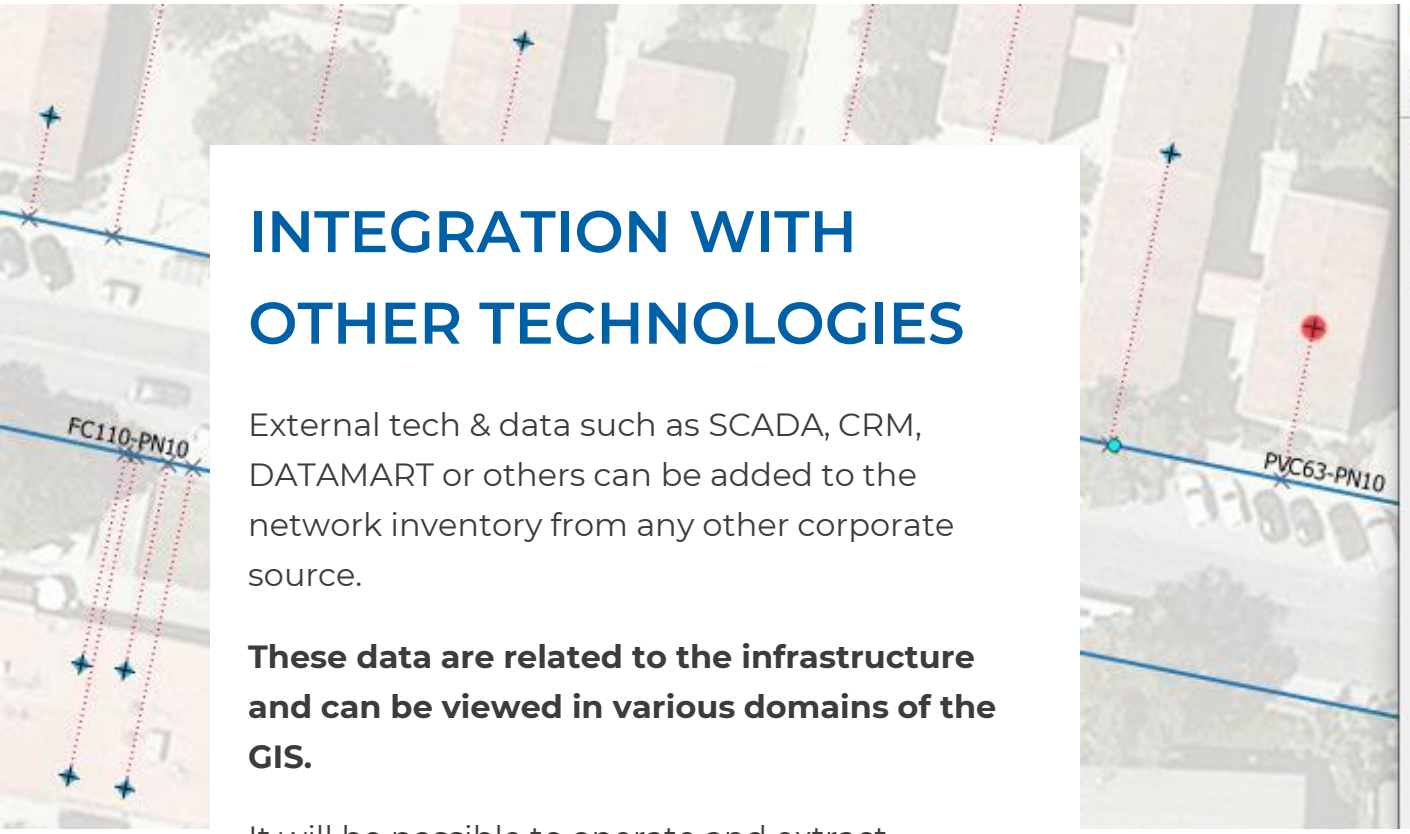
**You can group the elements to visit to carry out campaigns and do an advanced management of work data to extract very useful results.**

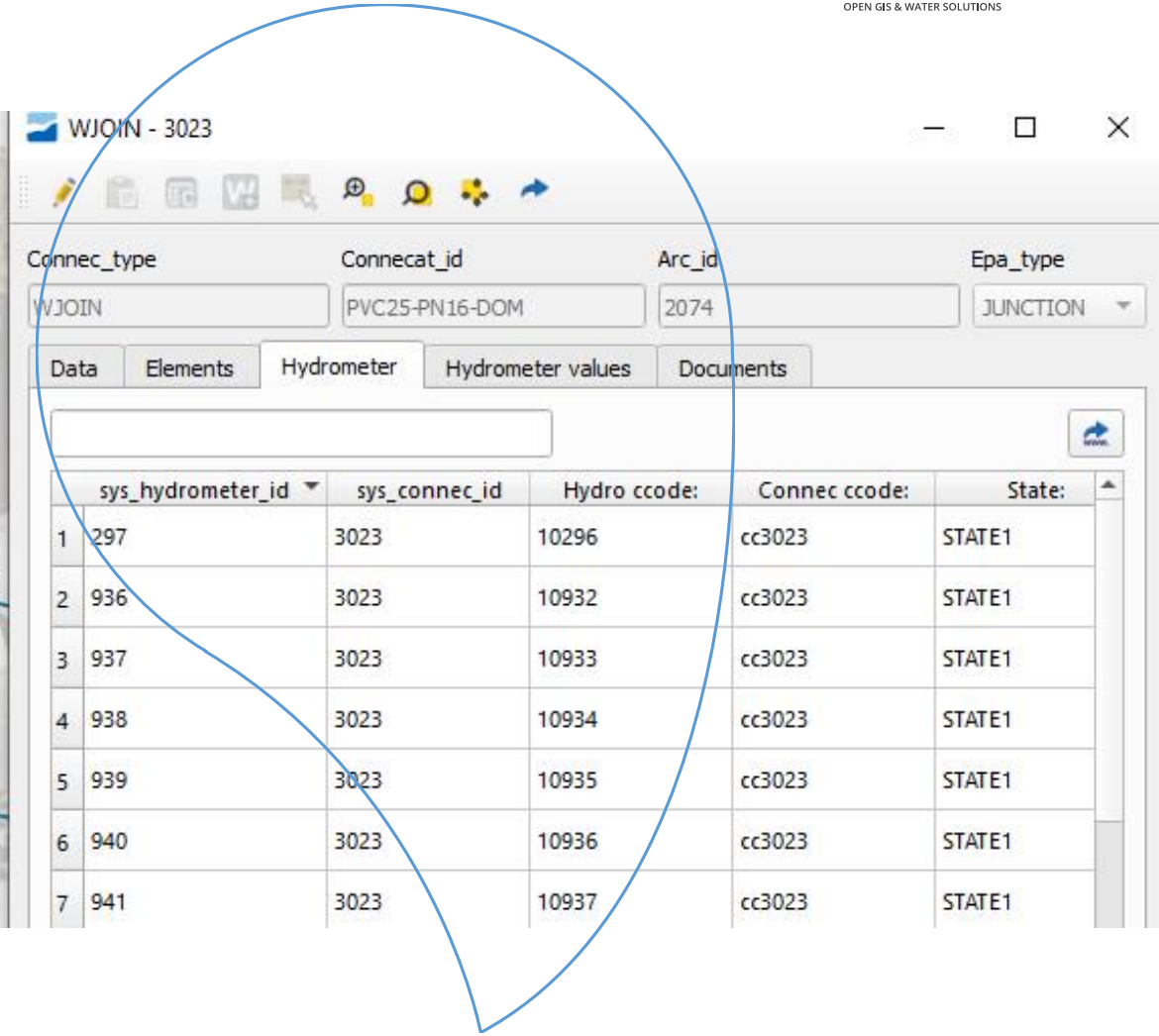
# INTEGRATION WITH OTHER TECHNOLOGIES

External tech & data such as SCADA, CRM, DATAMART or others can be added to the network inventory from any other corporate source.

**These data are related to the infrastructure and can be viewed in various domains of the GIS.**

It will be possible to operate and extract advanced results using this data.



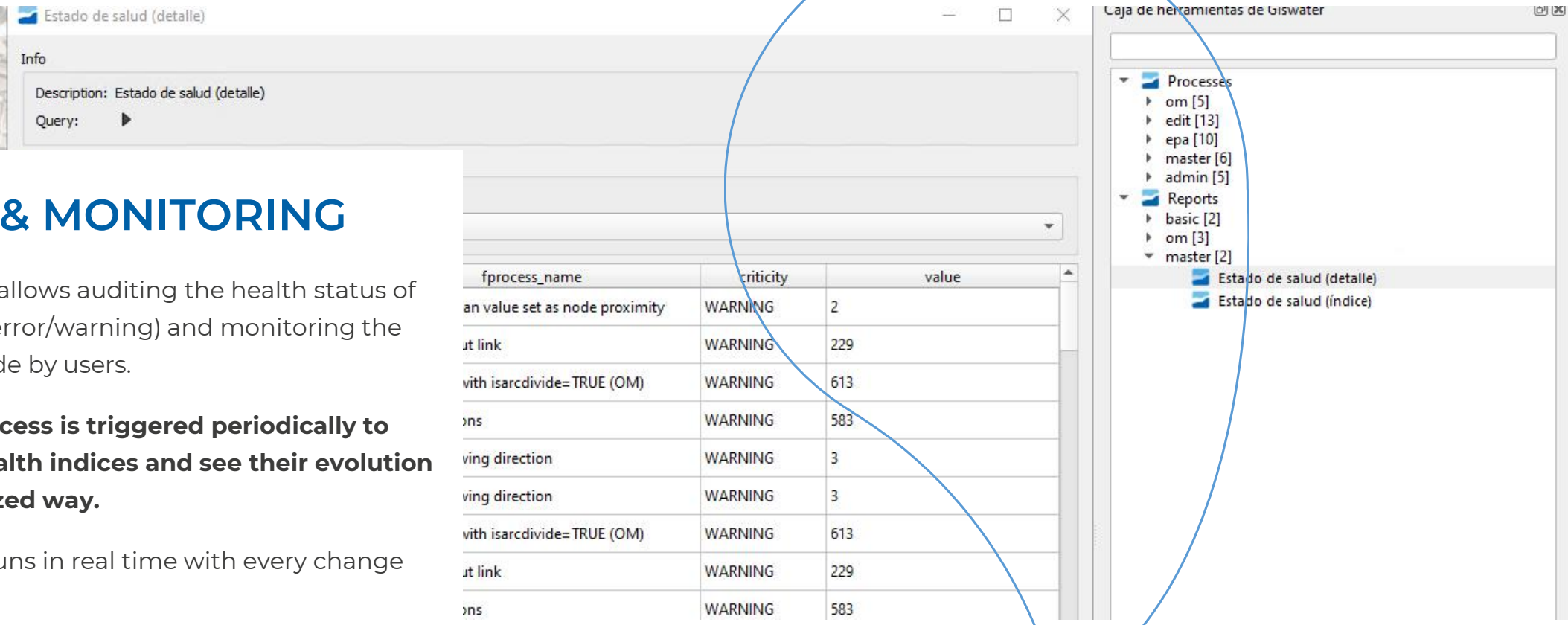

| | sys_hydrometer_id | sys_connec_id | Hydro ccode: | Connec ccode: | State: |
|---|---|---|---|---|---|
| 1 | 297 | 3023 | 10296 | cc3023 | STATE1 |
| 2 | 936 | 3023 | 10932 | cc3023 | STATE1 |
| 3 | 937 | 3023 | 10933 | cc3023 | STATE1 |
| 4 | 938 | 3023 | 10934 | cc3023 | STATE1 |
| 5 | 939 | 3023 | 10935 | cc3023 | STATE1 |
| 6 | 940 | 3023 | 10936 | cc3023 | STATE1 |
| 7 | 941 | 3023 | 10937 | cc3023 | STATE1 |

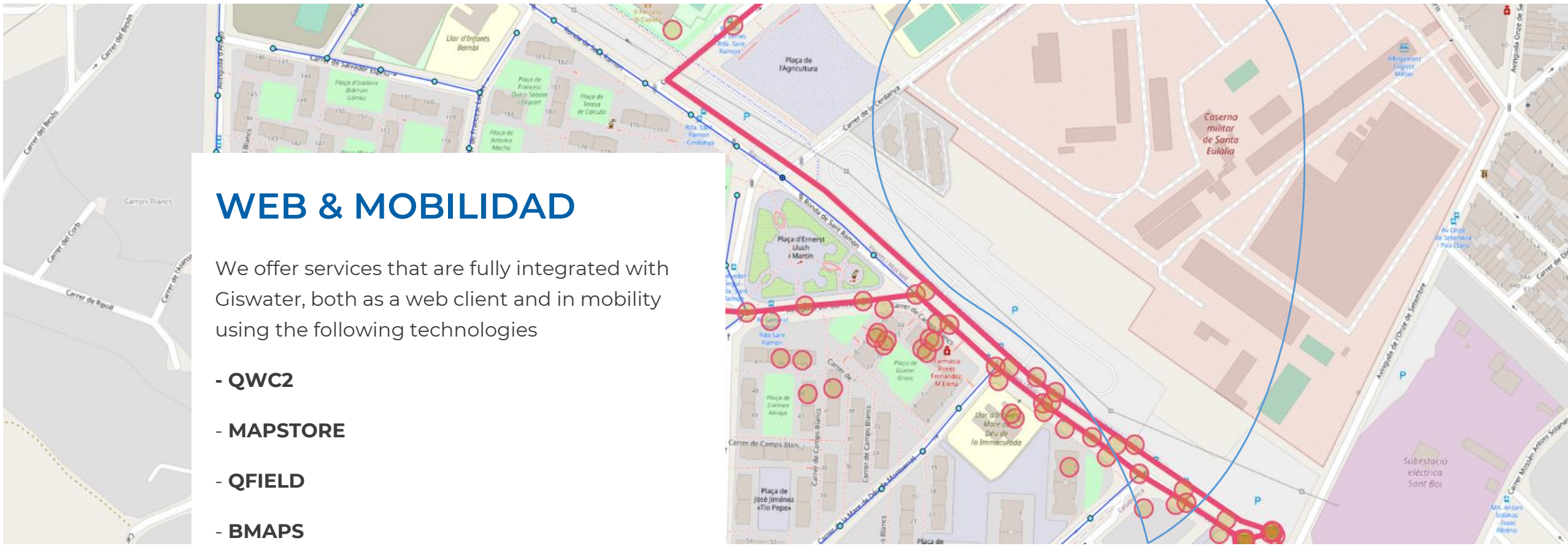
# AUDIT & MONITORING

Module that allows auditing the health status of the project (error/warning) and monitoring the changes made by users.

**An audit process is triggered periodically to establish health indices and see their evolution in a normalized way.**

Monitoring runs in real time with every change users make.






# WEB & MOBILIDAD

We offer services that are fully integrated with Giswater, both as a web client and in mobility using the following technologies

**- QWC2**

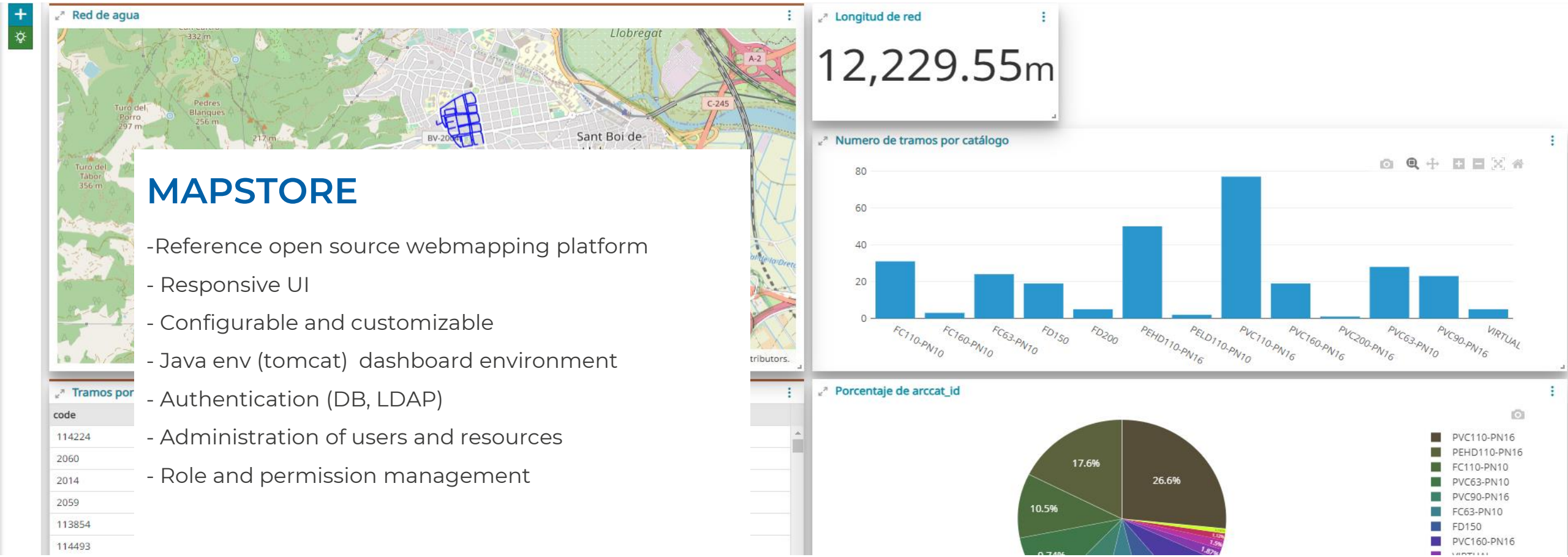
- **MAPSTORE**

- **QFIELD**

- **BMAPS**


# QWC2

- Official web platform of the QGIS project
- Responsive UI
- Configurable and customizable
- Modular architecture, plugins and microservices.
- Allows working with multi-tenancy architecture-
- Authentication (DB, LDAP)
- Administration of users and resources
- Role and permission management
- Permalinks



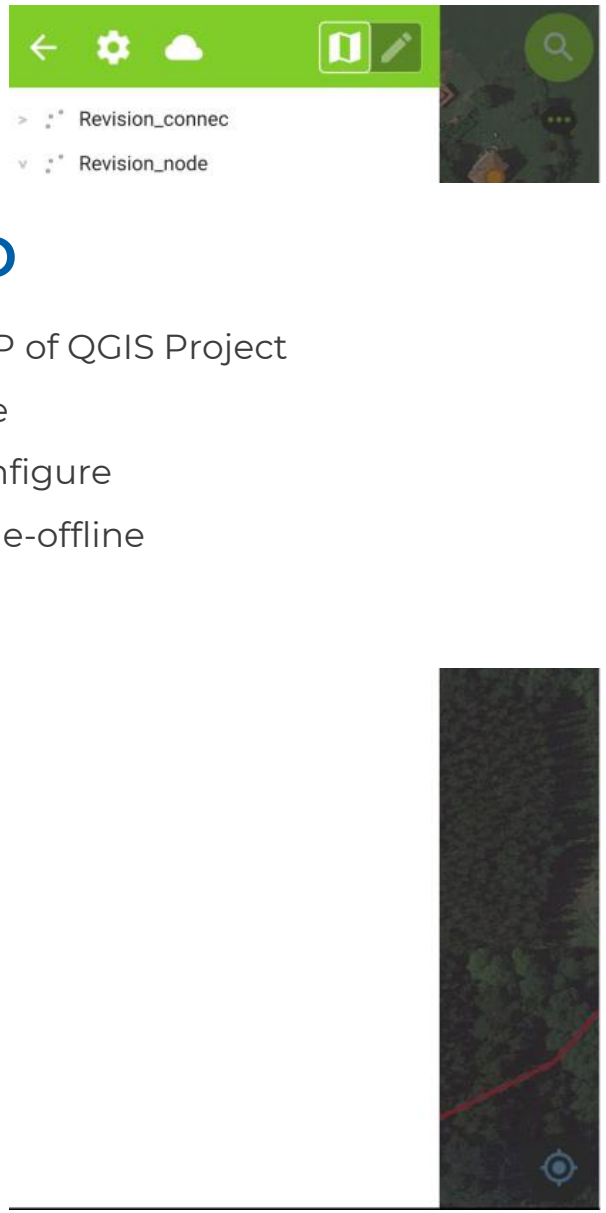

# MAPSTORE

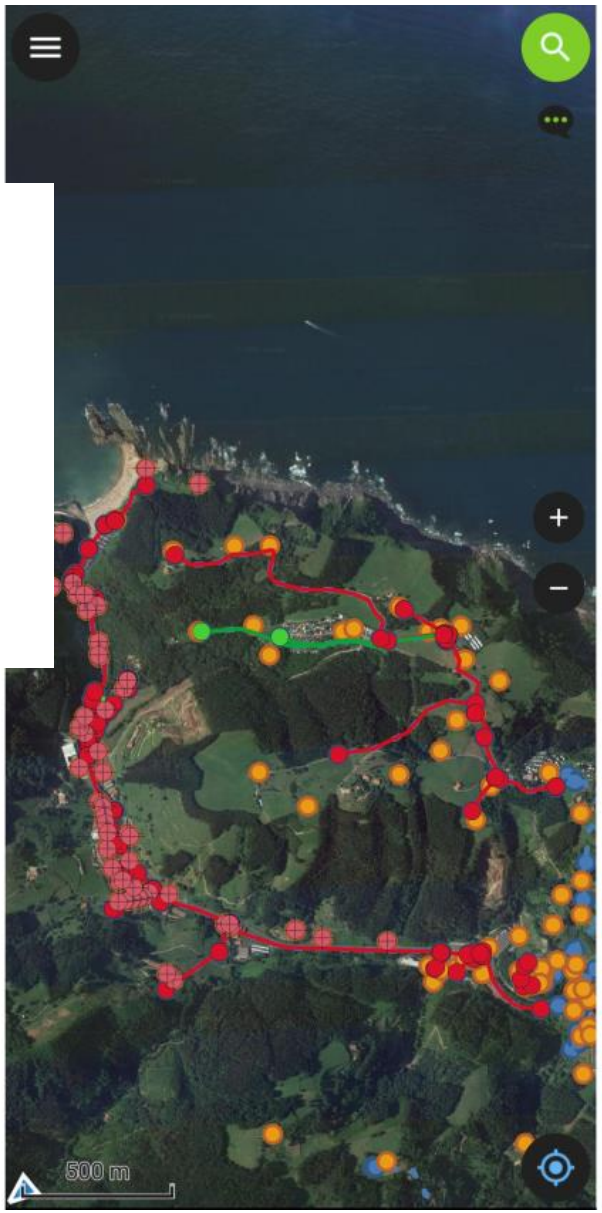
-Reference open source webmapping platform

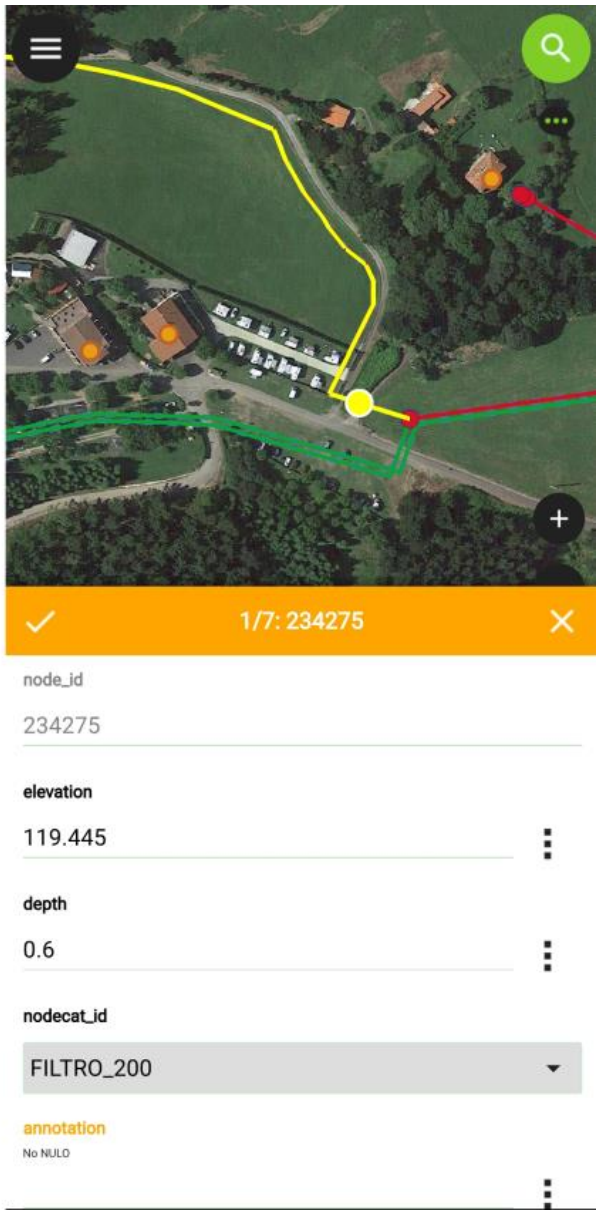
- Responsive UI
- Configurable and customizable
- Java env (tomcat)  dashboard environment
- Authentication (DB, LDAP)
- Administration of users and resources
- Role and permission management

# QFIELD

- Official APP of QGIS Project
- Responsive
- Easy to configure
- Work online-offline

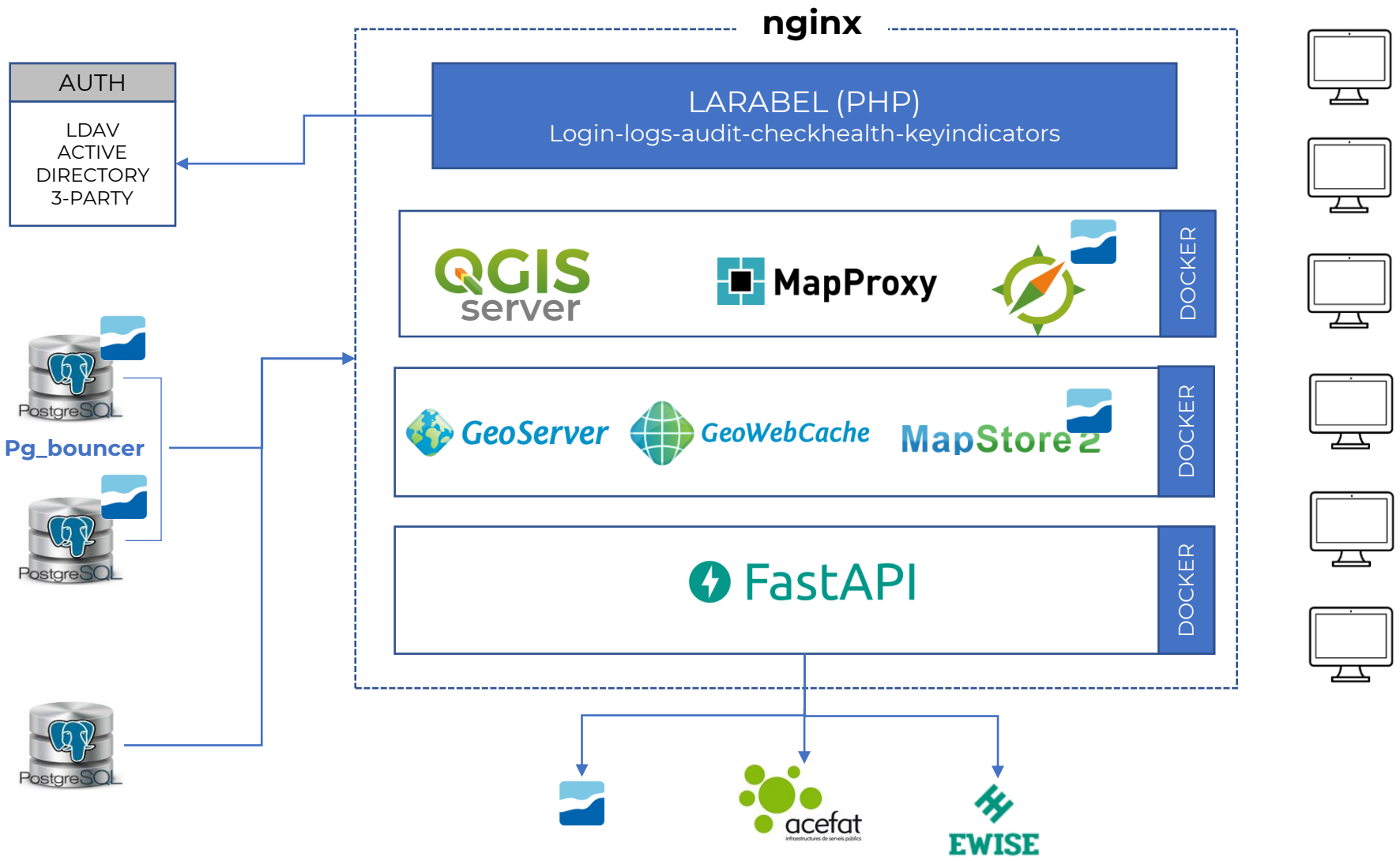


# GIS SYSTEM ARCHITECTURE FOR HIGHLY AVALIABILITY

Docker -> DockerCompose –> Pod -> Cubernetes




# ADVANTATGES OF THE SOLUTION

No licensing cost

Coupled GIS-hydraulic model

Fully customizable

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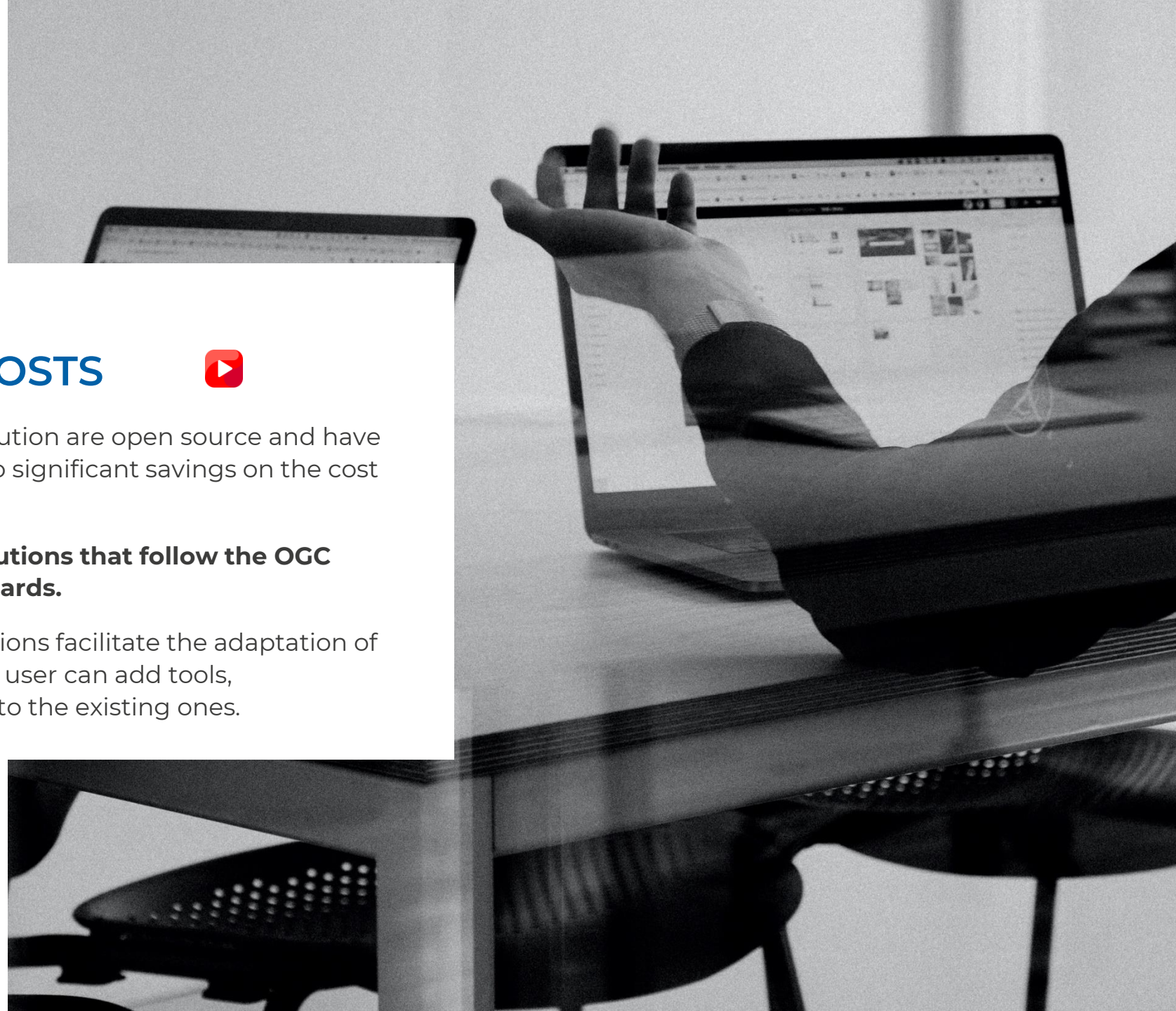


# NO LICENSING COSTS

All the components of the solution are open source and have no license cost, which leads to significant savings on the cost of implementation.

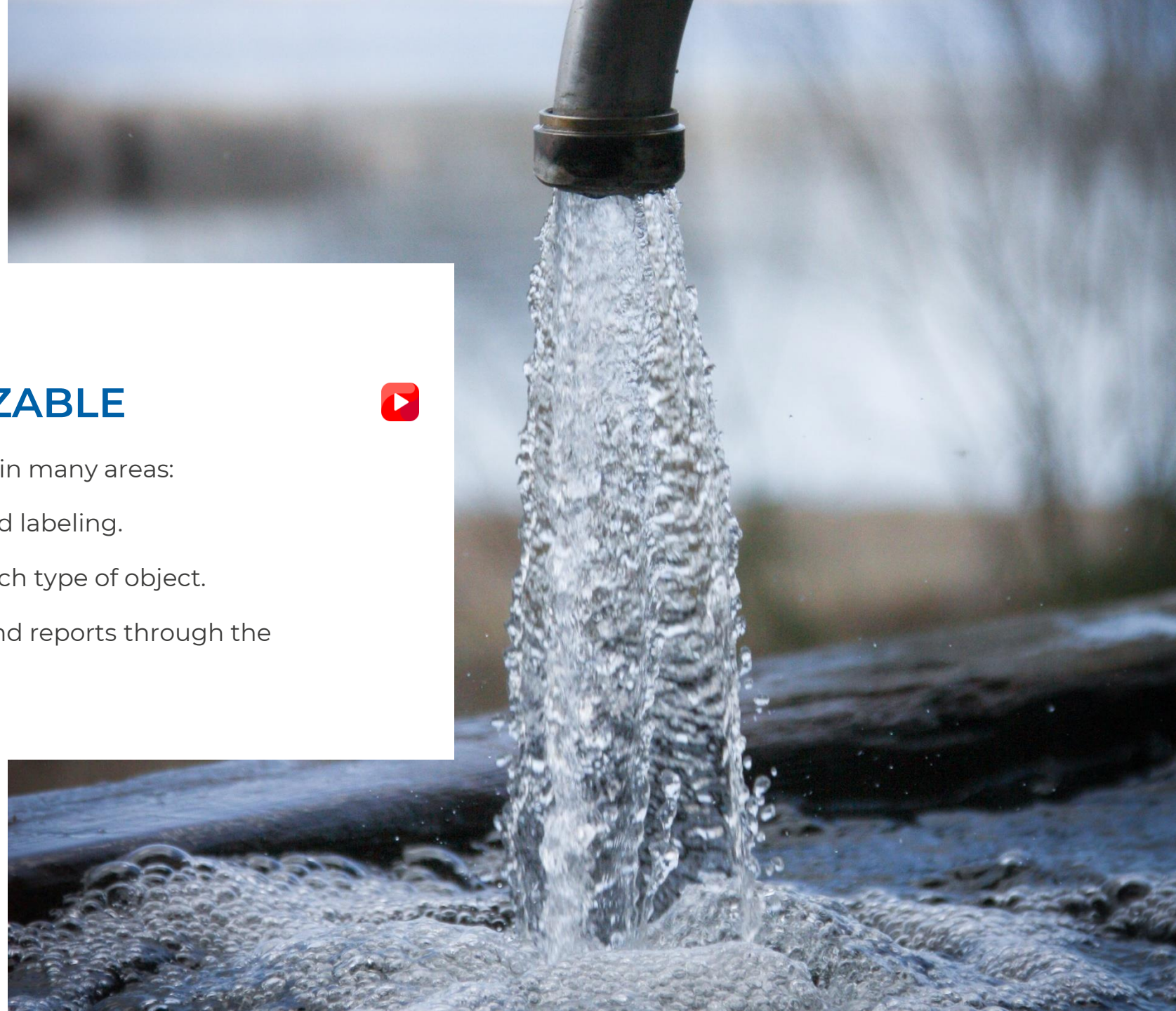
**They are market leading solutions that follow the OGC information exchange standards.**

In addition, open source solutions facilitate the adaptation of new developments, since any user can add tools, complements and processes to the existing ones.

# COUPLED GIS-HYDRAULIC MODEL

Natively oriented to integrate into the GIS the inventory data together with those of EPANET or SWMM, hydraulic programs of the EPA.

**It has several capacities for the integral management of the modeling, from the preparation of the initial data to the visualization of results in the GIS itself.**



# FULLY CUSTOMIZABLE

Our proposal is customizable in many areas:

- Rule-based symbology and labeling.
- Attributes and form for each type of object.
- Customizable functions and reports through the toolbox.

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