

Strategic Management for Natural Gas Networks

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GENERAL SYSTEM ARCHITECTURE

GasnetMaestro is a new software environment for managing natural gas infrastructure. GasnetMaestro works on a live database, so it has a multiuser structure.

By integrating other information systems, GasnetMaestro can display and analyze live, up-to-date data on a precise geography. All geographic data in the system are in the database, so the creation and updating of entries can be handled in the GIS desktop address application.

Queries on data in the system, as well as analyses and reports, can be made with the GIS web application.

AUTHORIZATION MODULE

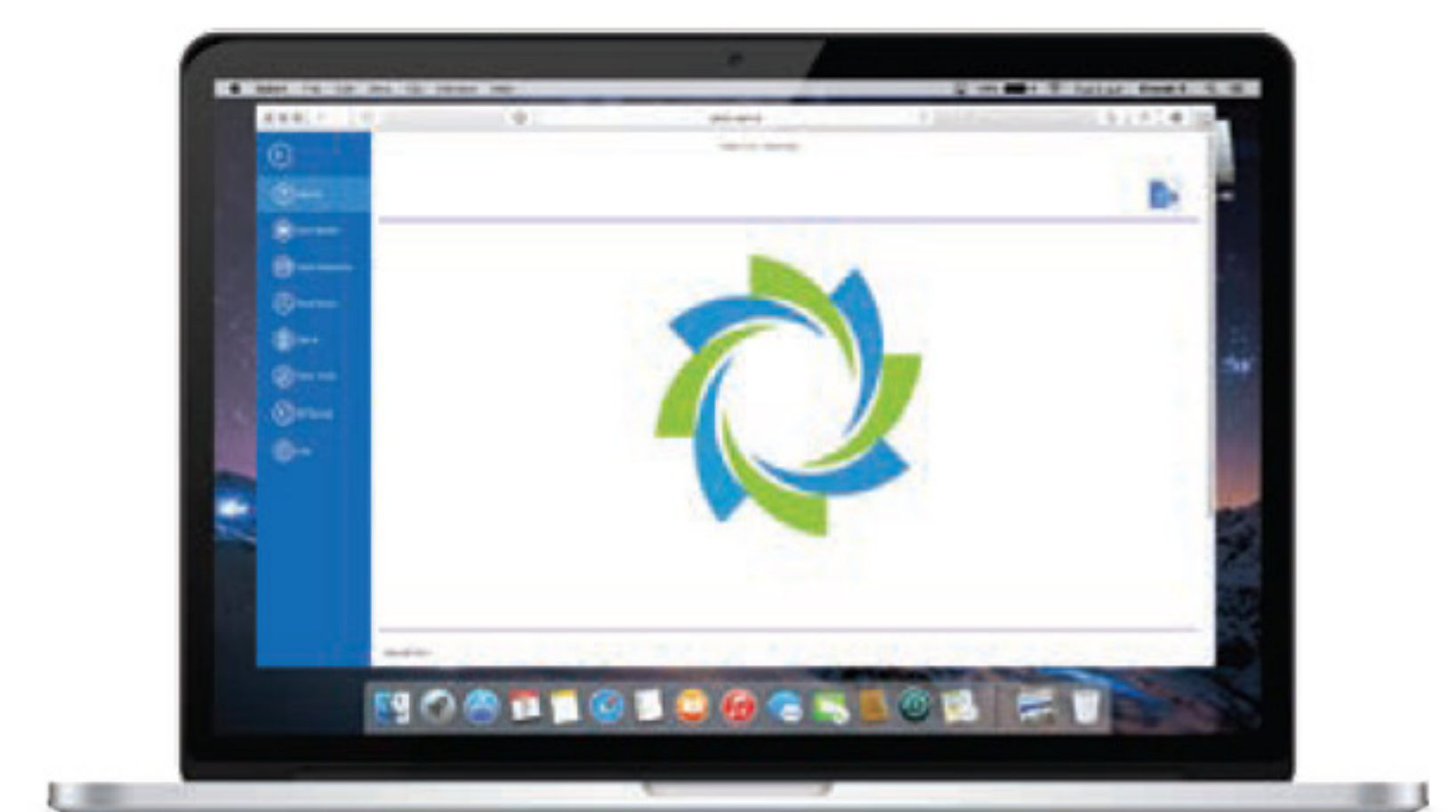
- Creation of user groups
- Authorization according to user groups
- User identification procedures
- Different authorization structures possible for Web and Desktop applications

When the user logs in with a username and password, a specific level of user functions and menus can be accessed, and the user's activities can be logged.

Regions defined by gas supply or subscribers can be displayed on the map, and addresses searched.

Sectors and regions can be defined according to subscription acceptance or rejection, and required constraints can be defined. Addresses not found in the system (street, door) can be recorded.

Newly entered or updated addresses can be seen immediately in the Customer Information System integrated into GasnetMaestro, and subscriber procedures can be performed. Through this integration, information on current and potential subscribers can be accessed at the individual building level.





GIS WEB APPLICATION

With the GasnetMaestro GIS Web Application, the user can query current address and network data, display them on a map, analyze them, and generate reports.

Without installing a program, map data can be queried from any desired location, displayed, and presented. Data from any of the integrated systems (customer information, SCADA, etc.) can be analyzed according to geographic criteria, down to the resolution of an individual subscriber's building and meter information.

Thematic maps can be generated, with results of analyses and reports being displayed in color on the map for clear understanding. Specific lists of network components can be generated by criteria such as component type, meter information, or sector/region. These lists can then be displayed on the map and presented in a report.

Requests for digging, installation, etc., made at the organizational or individual level, can be communicated and followed via web. This can make it easier for local governments and utilities providers to monitor operations. Service interruptions or emergencies can be understood in detail, because the flow of gas in the network is defined with respect to the valves that could be closed to shut off gas flow at any given location. Customers with interrupted service can be mapped in detail.

CONCLUSION

GasnetMaestro, as a GIS-based integrator, works on a live database and enables the use of the most up-to-date data.

GasnetMaestro provides the geographic data necessary for the systems being integrated (subscribers, network components), thus preventing mismatches between the systems. GasMaestro takes these integrated data, analyzes them, and generates detailed reports.

GasnetMaestro Desktop, through data management modules, enables the user to perform easily a wide range of analyses without needing to know GIS programming.

GasnetMaestro Web requires no installation, and enables the user at a specific authorization level to access the system from any computer. This gives flexibility to workflow, and improves both daily operations and strategic growth.

