THE SOFTWARE PLATFORM FOR DATA EXCHANGE OF THE EARLY WARNING SYSTEM FOR EXTREME WEATHER EVENTS: ALMENARA

The Software Platform is a tool for exchanging data and information between entities and institutions that take part of the early warning system for extreme weather events in Cuba. The platform will represent an essential instrument in response to disaster events by allowing to settle the functional relationships between the Institute of Meteorology, the National Institute of Water Resources and the Risk Assessment Group of the Environment Agency.

Target

The Platform has two main objectives related to the products that it manages:

1. To enable custom integration of institutions that are articulated in the EWS, guaranteeing the easy updating of data and information in a short time.

2. To guarantee full availability of information enabling to act in the early warning system, allowing each player in the system to get the right information according to the role played. Such information according to the degree of privacy can be:

- Restricted: for decision-makers and other institutions participating in the Early Warning System (EWS), it is regulated by a security protocol.

- Public: it must be available to television channels, radio stations and national media.

Design

In order to satisfy both objectives Almenara has the following design:
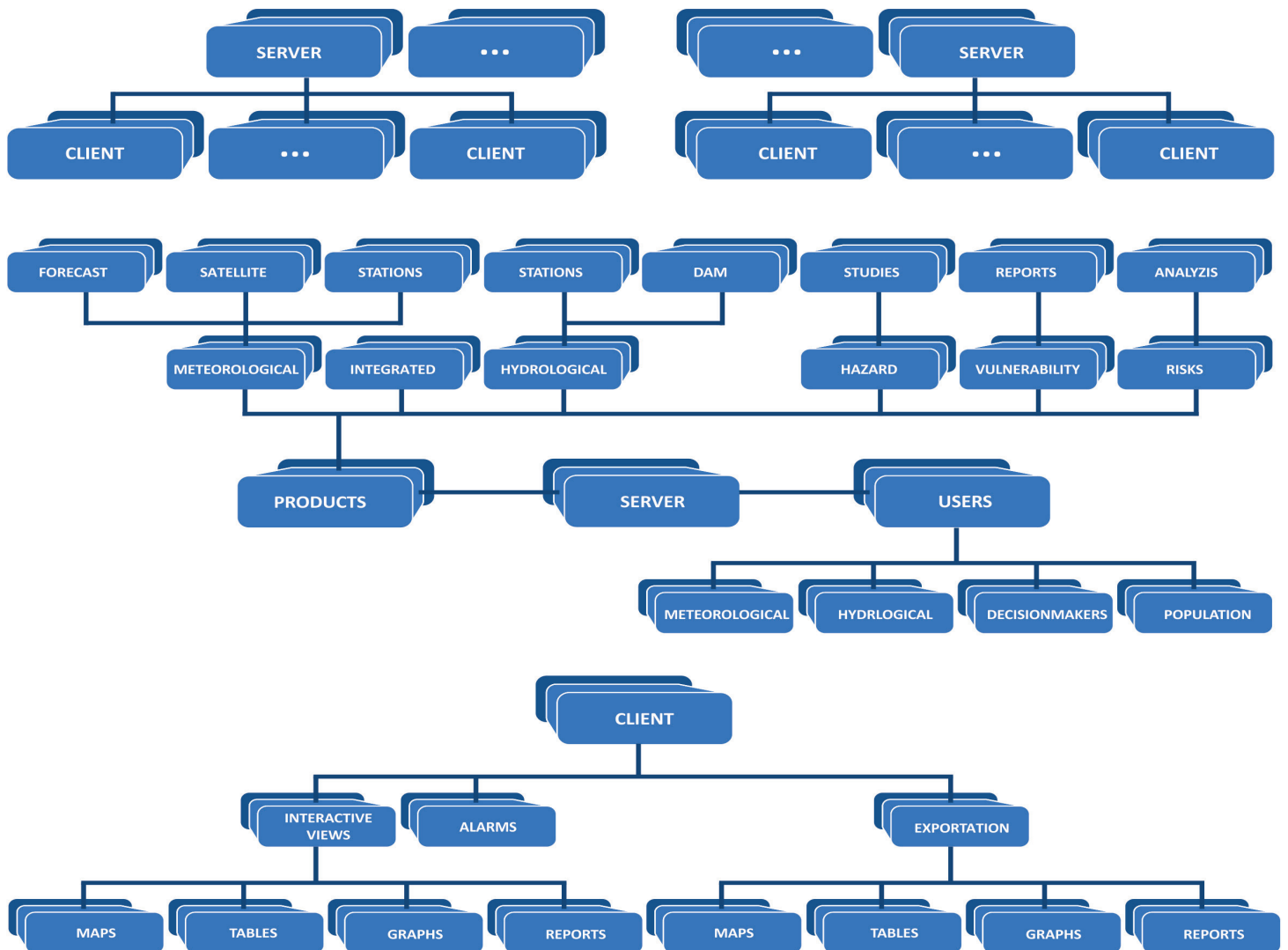
In this design a client-server architecture is visualized where in turn a server can be connected to another server.

The server is the component responsible for all users-related management and products to be shared in the system. Among its key functions are:

- To ensure the creation, editing and deleting of users and products.
- To ensure the inclusion of new data associated to existing products.
- To ensure proper control of users and their permissions.
- To ensure a secure data flow based on security certificates.
- To ensure an ordered data flow based on priorities.
- To ensure an automatic update of demanded products in a fully automatic and transparent way for users at all server instances on the network.

On the other hand, the client is an application that allows users to access the functions being allowed to perform in the server visually. Thus, a user can interact with the server through a client application for requesting information, inserting new data records, among many other applications.

Among their key functions are to ensure a proper displaying and exporting in various format.

Each component, either server or client, is divided into the following basic modules, each one specialized in exclusive functions:

Modules:

- User Management
- Product Management
- Interactive Display
  -Maps
  -Tables
  -Graphics
  -Reports

- Alarm Managament
- Exporting
  -Maps
  -Tables
  -Graphics
  -Reports

Server

The Server application is a service that uses modules for product and users management.

Synchronizing the use of each of these modules via a central connection on the server allows updating the necessary information in neighboring servers.

This way, all nodes of the country have updated information and the risk of misinformation due to communication losses is reduced.

Client

The Client application is a software of modules presentation to display products and access control modules to manage user - product relationships.

Managing maps allows the user to interact with different maps guaranteeing the basic operations of a geographic information system.

File management can be performed manually or automatically. The manual version allows the management of products through a visual interface where the user with appropriate permissions can create, modify and delete information concerning the products.

The automatic version allows defining an information updating flow contained in an unattended product, so that the information management is fully automatically performed.

Contacts

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