OBSEA SERVERS NETWORK

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Abstract – In this paper will be presented an overview of the information treatment servers structure used in the OBSEA project explaining and justifying the chosen topology.

Keywords - OBSEA, information servers, underwater observatory network .

I. INTRODUCTION

When planning network infrastructures is always recommended to study a proper topology that will provide a good communication medium maintaining the security. In the exact case of the OBSEA network it has been designed a scalable structure allowing a safety fast expansion conserving the integrity of the remaining network devices. One of the critical questions in all the systems connected to Internet is the security police, which is always confronted with the usability. When the structure is highly secure can be impossible to work with it, otherwise, if no security police is implemented foreign and unauthorized users can gain access and damage the infrastructure or use the resources for its own purposes.

In the OBSEA network there is a compromise, external access to the instruments is restricted and only acquired data is forwarded

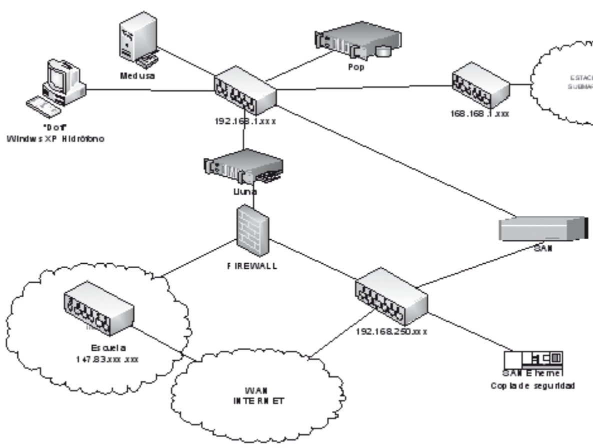

Figure 1. OBSEA servers network.

II. EVOLUTION AND RESULTS.

Servers and services:

We start from the premise that is preferable to have one server device for each provided service, for what it has been implanted the following topology.

Data communications comes from the subsea observatory to the ground station in the University building through a dual gigabit Ethernet singlemode fiber optic link. From there to the CTVG building were are located the information servers is been used an existing multimode fiber optic link ending in a GigaEthernet Switch from which are connected all the servers. As is shown in the figure one, they are currently four servers each one dedicated to one service.

In the "Pop" server are implemented the services related with the subsea webcam video recording and image provider (acquisition from webcam, video frames storage, video server, etc).

The "Dofi" server implements all the services related with the hydrophone: Data reception, sound processing, and packet forwarding to external users.

The "Medusa" server is implementing the network management and error monitoring with a SNMP (Simple Network Management Protocol) server

At last the "Lluna" server is storing the sensors information in a data base and is in charge of all the extended services.

The operative systems of the servers has been chosen according to the services and applications running in them. In the next table 1 are listed.

Server	SO
Pop	Fedora
Medusa	CenTOS
Dofi	Windows XP
Lluna	Ubuntu

Table 1. OBSEA servers names and OS.

At present people is working in the migration of the "Lluna" server to a Sun/Solaris platform to improve the reliability.

Services

Currently the data from oceanographic instruments is been stored in a Data Base in order to be used for the scientific community. This data is presented in the OBSEA website together with the climatic information from a ground observatory. This data can be retrieved and correlated with information coming from external experiments to obtain advanced conclusions.

Thanks to the flexibility of the system is possible to serve real time hydrophone data to an investigation group of the UPC involved in the LIDO project. This project have the finality to process real time data providing from several European observatories for the identification and tracking of mammals and other animals in the Mediterranean sea.

Extra services and future expansions.

Due to the OBSEA is prepared to accept new instruments, can come up the necessity from a scientific to test an instrument and for that, he will need the unabridged data in its own computers, for that has been developed a set of programs that are able to recollect information from one instrument and send to a exact computer or store it locally.

In addition is been developed the software needed to interact automatically with external men or machines using standard international protocols such as IEEE-1451 and some "web-services". With this interface external users will be able to access the real time and historic data as well as to the metadata required to interpret it.

III. CONCLUSIONES

The nowadays existing informatics equipment has been developed to be used for ground networks. When using it in marine applications must be taken in account some special considerations such as the inaccessibility which complicates the material election to grant the reliability and robustness.

Another key are data accessibility, it is almost impossible to implement a structure able to interact with any type of sensor and any type of user. For that are being developed standard interfaces for standard sensors and different ones will be adapted to one of this interface. In any case, due to the flexibility of the system, when is not feasible to interpret data from one sensor, is always possible to send raw data transparently to the client without interaction with it.

IV. ACKNOLEDGEMENTS

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