OBSEA HOSTING HOUSE

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Introduction

The main features of the OBSEA seafloor observatory are the connectivity and modularity. Its design allows the easy connection of any device or instrument with Ethernet interface. Nowadays, the observatory has three instruments (which provide five measurements of data) that are connected to the hardware infrastructure, which has the tasks to manage the communications and to process and store data to RAW files, or MySQL records in a comfortable way.

The network infrastructure, shown in Figure 1, is composed by four servers, named as: Dofi, Lluna, Pop and Medusa. The Dofí server is the responsible for acquiring data from the hydrophone, as well as storing the sound samples and generating a WAV file, and temporal graph-files, which are then sent to Lluna server by FTP.

The main task of Lluna server is routing the traffic data between the private and the public networks. Pop server is the unique client of the IP camera, and it manages and provides the video services. Its main assignment is to serve video to every client that requests it, solving the connection limit (ten clients) that has the IP camera. The last server, Medusa, monitors the activity and status of every equipment in the network.

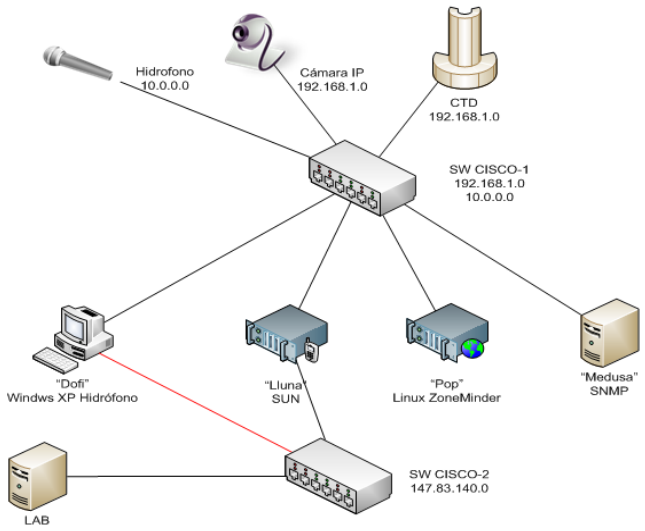

Figure 1. Instruments and hardware infrastructure of the OBSEA

OBSEA Website

The data acquired from the underwater laboratory instruments is shown in the OBSEA web site in real-time (www.obsea.es). Also, there is a weather station located in SARTI facilities that provides meteorological information to the web site. With these data, from sea and land, it is possible to analyze and correlate the seabed data with the weather conditions.

Server Sizing

The server Lluna has the best features of the network, because it manages and controls the traffic inside and outside the OBSEA network, shown in Figure 2; and on the other hand, it controls and buffers the high traffic data of the instruments.

In order to have an efficient system, and to avoid blocking the traffic, the different tasks and services have been programmed independently. Some services have been programmed using different programming languages and O.S., taking advantage of the specific capabilities and resources that they offer. Using virtual machines was a key to allow all the systems to work together, and sharing the resources, without blocking themselves.

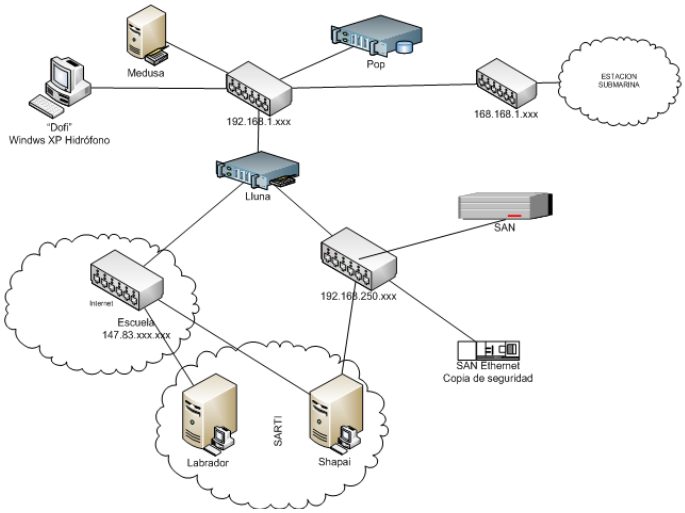

Fig. 2 OBSEA network infrastructure

Data storage

The infrastructure has an own range in the private network to store data (Fig. 2). The data storage system is composed by a Storage Area Network (SAN), with redundant storage able to manage up to ten iSCSI disks. The disks management is done on the Lluna server.

The data storage is scalable by adding disks to the slots, and the system is able to recognize them and expand the storage automatically. If the disks capacity exceeds the maximum storage, up to 10 disks, it is possible to add more SAN's to the private network to expand the system.

Conclusions

A hardware structure in the OBSEA network that permits the connectivity of any device or instrument with Ethernet interface has been developed. The network and the equipments installed allow retrieving, process, and storing data from instruments, as well as redirect the data to anywhere. It is a modular system, and the unique limitation is the capability of the Ethernet network.