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Monitoring services in the framework of SeaDataNet II Project

A. Lykiardopoulos¹, K. Kalkavouras¹, S. Balopoulou¹, S. Iona¹, F. Gheorghe²

Hellenic Centre for Marine Research (HCMR)¹, Marine Information Service (MARIS)²

What is Network Monitoring?

Network monitoring refers to the practice of overseeing the operation of a computer network using specialized management software tools. Network monitoring systems are used to ensure availability and overall performance of computers (hosts) and network services.

A monitoring system is capable of:

- ❖ detecting and reporting failures of devices or connections,
- ❖ send messages over the network to each host to verify it is responsive to requests,
- ❖ send additional messages called alerts to designated locations (such as a management server, an email address, or a phone number) to notify system administrators, when failures, unacceptably slow response, or other unexpected behavior is detected, in these systems.

Main Objective

The main objective of Network Monitoring development during SeaDataNet II is to deliver a monitoring system, more stable, accurate and capable to monitor the operation of a computer network. The system will ensure the availability of computers (hosts) and network services in the network. It will also be capable to detect and report failures of devices or connections. Even more in case of failures occurrences or other unexpected behaviors, the system will send messages (alerts) to designated locations to notify system administrators.

What is being monitored?

Until now a total of 99 services are being monitored the following:

- ❖ 7 SeaDataNet core Services,
- ❖ 2 GeoSeas core Services,
- ❖ 43 SeaDataNet Download Managers,
- ❖ 25 GeoSeas Download Managers,
- ❖ 23 UBSS Download Managers.

Benefits

The production of this monitoring system provides the following monitoring benefits:

- ❖ monitoring in real time and alerting when incidents are detected so the administrators are able to correct them as soon as possible,
- ❖ in a longer term, identification of critical components within widely distributed systems and to update them to improve their robustness,
- ❖ information for the users and stakeholders of the system on the overall availability of provided services,
- ❖ especially by the production of the messaging system for the administrators the monitoring system will become a “live” component of SeaDataNet acting as valuable tool to improve the overall availability of the whole platform.

Conclusion

The network monitoring project is now an operational monitoring system which can produce statistics for 90 services. So far the results of the system indicates that SeaDataNet core services availability is up to 99.90% which is enough to conclude that core services are accessible constantly. At the same time on other outcome of monitoring system is the availability of download managers which be considered satisfactory as the most services' availability is up to 99,5 %.

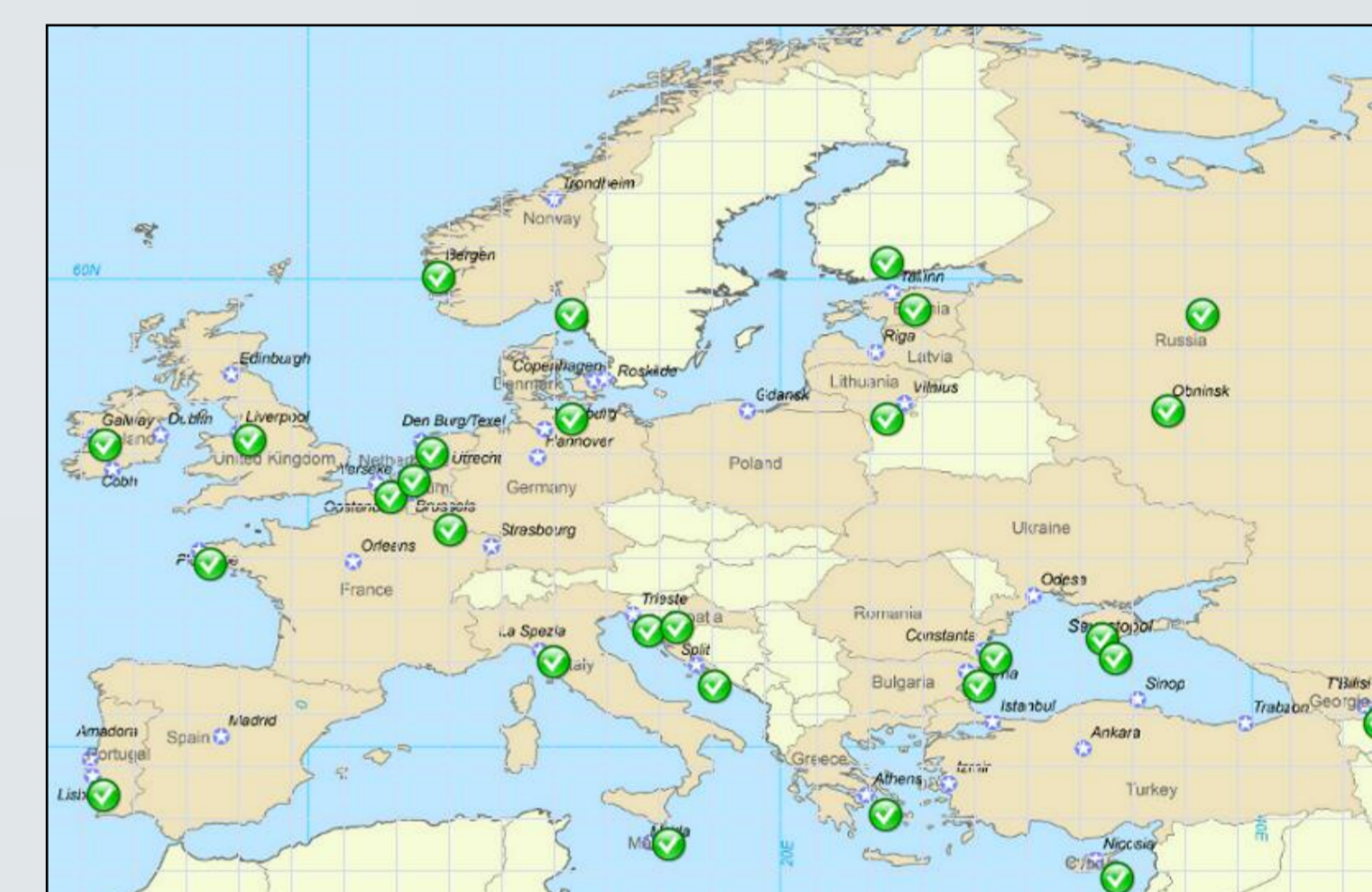
Monitoring Software

The appropriate monitoring software was Nagios and was selected after a comparison of the available tools on the market. It is an Open Source software package widely used in Academic and Commercial community.

In order to view the state of the services in real time in a friendlier way a visualization tool was developed based on the NagVis add-on of Nagios.

The following modules were or are being developed as main parts of such a system constitution:

- ❖ additional nagios system plug-ins in order to monitor web forms, web services, Download Manager and Central Authentication Service (CAS),
- ❖ a global availability indicator (formula and weights),
- ❖ a web portal for delivering and sharing monitoring,
- ❖ a messaging system for notifying the administrators,
- ❖ a second nagios system to a second physical premise and development of software tools for comparison and merging of the measurements results.



Web Portal

A web portal is under development for delivering and sharing monitoring results which will host global statistics and information of all SeaDataNet sources as well as detailed statistics for each separate service which will be accessible only from the administrators of each service.

