

WP2 - Monitoring the infrastructure - Results

Angelo Lykiardopoulos, Stavroula Balopoulou

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What is network monitoring?

The term **network monitoring** describes the use of a system that constantly monitors a <u>computer network</u> for slow or failing components and that notifies the <u>network administrator</u> in case of outages.

In the fields of SDN, network monitoring service monitors through Internet all other SDN services (portals, DMs, etc) to confirm that they are accessible and available, notify persons in charge to take action in case of service failure and keep statistics.

What is being monitored until now?

A total of 100 services... (90 on February 2013)

- √ 7 SeaDataNet Services
- ✓ 2 GeoSeas Services
- √ 43 SeaDataNet Download Managers
- √ 25 GeoSeas Download Managers
- ✓ 23 UBSS Download Managers

Monitored Services statistics

In the next slides, statistics are presented about the availability results of the 100 services derived from 5 service groups (4 service groups on February 2013). The results are presented per service group and refer to a monitoring period of approximately 8 months (from 03-01-2013 to 18-09-2013).

The 5 service groups are:

- ✓ SeaDataNet Services
- ✓ GeoSeas Services
- ✓ SeaDataNet Download Managers (SeaDataNet DMs)
- √ GeoSeas Download Managers (GeoSeas DMs)
- ✓ UBSS Download Managers (UBSS DMs)

'SeaDataNet Services' results from 03-01-2013 to 18-09-2013

| Service | % Time OK | % Time Critical |
|-------------------|-------------------|-----------------|
| ROSCOP homepage | 98.910% (98.910%) | 1.090% (1.090%) |
| CDI homepage 1 | 99.965% (99.965%) | 0.035% (0.035%) |
| CDI homepage 2 | 99.965% (99.965%) | 0.035% (0.035%) |
| EDIOS homepage | 99.965% (99.965%) | 0.035% (0.035%) |
| EDMERP homepage | 99.965% (99.965%) | 0.035% (0.035%) |
| EDMO homepage | 99.965% (99.965%) | 0.035% (0.035%) |
| <u>SeaDataNet</u> | | |
| <u>homepage</u> | 99.836% (99.836%) | 0.164% (0.164%) |
| Average | 99.796% (99.796%) | 0.204% (0.204%) |

'GeoSeas Services' results from 03-01-2013 to 18-09-2013

| Service | % Time OK | % Time Warning | % Time Critical |
|------------------------|-------------------|-----------------|-----------------|
| Geoseas Godiva Service | 98.695% (98.695%) | 0.390% (0.390%) | 0.916% (0.916%) |
| | 98.686% (98.686%) | • | · · |
| Average | 98.690% (98.690%) | • | · |



'SeaDataNet DMs' results from 03-01-2013 to 18-09-2013

| Service | % Time OK | % Time Critical |
|------------------------------|---------------------------------------|-----------------|
| CNR Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| IMGW Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| ENEA Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| IOI Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| IBSS Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| BGODC-IOBAS Download Manager | 99.753% (99.753%) | 0.247% (0.247%) |
| IOLR Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| INSTM Download Manager | 93.749% (93.749%) | 6.251% (6.251%) |
| IGEWE Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| TSU Download Manager | 99.930% (99.930%) | 0.070% (0.070%) |
| SHODB Download Manager | 90.845% (90.845%) | 9.155% (9.155%) |
| MI Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| IMR Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| VLIZ Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| EPA Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| MRI Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| IHPT Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| MHI-MIST Download Manager | 99.922% (99.922%) | 0.078% (0.078%) |
| IORAS-SIO Download Manager | 99.973% (99.973%) | 0.027% (0.027%) |
| IOPAN Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| SMHI Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| RHMI Download Manager | 99.979% (99.979%) | 0.021% (0.021%) |
| FMI Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| IZOR Download Manager | 99.965% (99.965%) | 0.035% (0.035%) |
| BODC Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| HNODC Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| OGS Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| NIOO Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| MSI Download Manager | 99.868% (99.868%) | 0.132% (0.132%) |
| MSI-NIB Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| PANGEA Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| ICES Download Manager | 99.973% (99.973%) | 0.027% (0.027%) |
| IMBK Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| NIMRD Download Manager | 99.992% (99.992%) | 0.000% (0.000%) |
| RSHU Download Manager | 100.000% (100.000%) | 0.008% (0.008%) |
| BSH Download Manager | 99.941% (99.941%) | 0.059% (0.059%) |
| NERI Download Manager | 100.000% (100.000%) | 0.059% (0.059%) |
| NIOZ Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| IFREMER Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| CYOC Download Manager | 99.914% (99.914%) | 0.000% (0.000%) |
| | · · · · · · · · · · · · · · · · · · · | |
| MUMM Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| IEO Download Manager | 99.852% (99.852%) | 0.148% (0.148%) |
| SHOM Download Manager | 99.962% (99.962%) | 0.038% (0.038%) |
| Average | 99.619% (99.619%) | 0.381% (0.381%) |

'Geo-Seas DMs' results from 03-01-2013 to 18-09-2013

| Service | % Time OK | % Time Critical |
|------------------------------|---------------------|-------------------|
| IGG-NRC Download Manager | 99.847% (99.847%) | 0.153% (0.153%) |
| UB Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| BGODC-IOBAS Download Manager | 99.753% (99.753%) | 0.247% (0.247%) |
| LNEG Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| EGK Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| OGS-RIMA Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| TNO Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| NGU Download Manager | 99.952% (99.952%) | 0.048% (0.048%) |
| BGR Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| BGS Download Manager | 99.608% (99.608%) | 0.392% (0.392%) |
| BRGM Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| PGI Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| CDG-CNRS Download Manager | 99.992% (99.992%) | 0.008% (0.008%) |
| UCC Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| GEUS Download Manager | 99.976% (99.976%) | 0.024% (0.024%) |
| BODC Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| GSI Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| LU Download Manager | 74.912% (74.912%) | 25.088% (25.088%) |
| IGME-ES Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| NOA Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| BSH Download Manager | 99.941% (99.941%) | 0.059% (0.059%) |
| IGME-GR Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| IFREMER Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| MUMM Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| SHOM Download Manager | 99.962% (99.962%) | 0.038% (0.038%) |
| Average | 98.958% (98.958%) | 1.042% (1.042%) |

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'UBSS DMs' results from 07-01-2012 to 02-01-2013

| Service | % Time OK | % Time Critical |
|------------------------------------|---------------------|-----------------|
| BSTU Download Manager | 99.853% (99.853%) | 0.147% (0.147%) |
| Ankara University Download Manager | 98.987% (98.987%) | 1.013% (1.013%) |
| IBSS Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| BGODC-IOBAS Download Manager | 99.755% (99.755%) | 0.245% (0.245%) |
| IU-IMS Download Manager | 99.941% (99.941%) | 0.059% (0.059%) |
| IGS Download Manager | 98.710% (98.710%) | 1.290% (1.290%) |
| YugNIRO Download Manager | 99.579% (99.579%) | 0.421% (0.421%) |
| UMG Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| SNU Download Manager | 99.254% (99.254%) | 0.746% (0.746%) |
| TSU Download Manager | 99.931% (99.931%) | 0.069% (0.069%) |
| GAMMA Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| BSCS Download Manager | 99.750% (99.750%) | 0.250% (0.250%) |
| DEU-IMST Download Manager | 93.299% (93.299%) | 6.701% (6.701%) |
| IKI-RAS Download Manager | 98.763% (98.763%) | 1.237% (1.237%) |
| ONU Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| DHMO Download Manager | 99.968% (99.968%) | 0.032% (0.032%) |
| MHI-MIST Download Manager | 99.923% (99.923%) | 0.077% (0.077%) |
| IORAS-SIO Download Manager | 99.973% (99.973%) | 0.027% (0.027%) |
| MHI-UB Download Manager | 99.264% (99.264%) | 0.736% (0.736%) |
| RHMI Download Manager | 99.979% (99.979%) | 0.021% (0.021%) |
| IFR Download Manager | 100.000% (100.000%) | 0.000% (0.000%) |
| NIMRD Download Manager | 99.992% (99.992%) | 0.008% (0.008%) |
| UKRSCES Download Manager | 97.575% (97.575%) | 2.425% (2.425%) |
| Average | 99.326% (99.326%) | 0.674% (0.674%) |



Comparison with previous results

The previous results (time duration almost 1 year from 2012-2013) were presented in the 4th TTG meeting on February 2013. By comparing the average amount of critical events per service group the following conclusions can be reached:

- ✓ SeaDataNet Services group: increased by 0.157%,
- ✓ **SeaDataNet Download Managers group:** decreased by 0.48%,
- ✓ GeoSeas Download Managers group: increased by 0.2%,
- ✓ **UBSS Download Managers group:** decreased by 2,323%.

Overall Progress on Monitoring

| A new development linux server is installed in order to implement the new software. In this server Nagios and NagVis have been installed (identical with the production server but without the notification capability). |
|---|
| |
| □ NagVis visualization tool for Nagios has been updated to the latest version. |
| A modified version of Nagdb (a Nagios add-on is installed), a tool that stores status information in a database by reading nagios log file and updating the database in near real-time. HCMR changed nagdb source code to add in database the detailed status and unix timestamp information of nagios log file and also to keep in database all event history. |
| □ Login using LDAP user authentication, |
| ☐ A beta version of the monitoring portal is already designed and developed (Phase V of theMonitoring Plan). |
| ☐ A second identical nagios has been installed in OGS data centre with HCMR support (Phase VIII). |



March 2012 September 2012 February 2013 September 2013

Time Table of Monitoring Plan

| ## Soutest Monitoring services investory, existing monitoring services upgrade. ## PARKE I: Monitoring services within plot partners ## TASK I: Exerting up monitoring services with plot partners ## TASK I: Exerting up monitoring u | | | | | | | | | | | | | | | | | | | | | | | / | | | | | | | | | | | | 1 | | | | |
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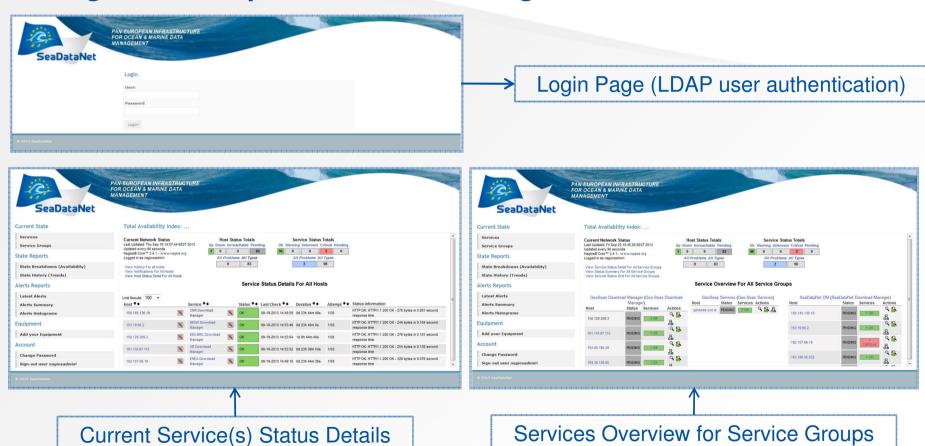


Design & Development of Portal

For the portal's purposes the following features have been implemented:

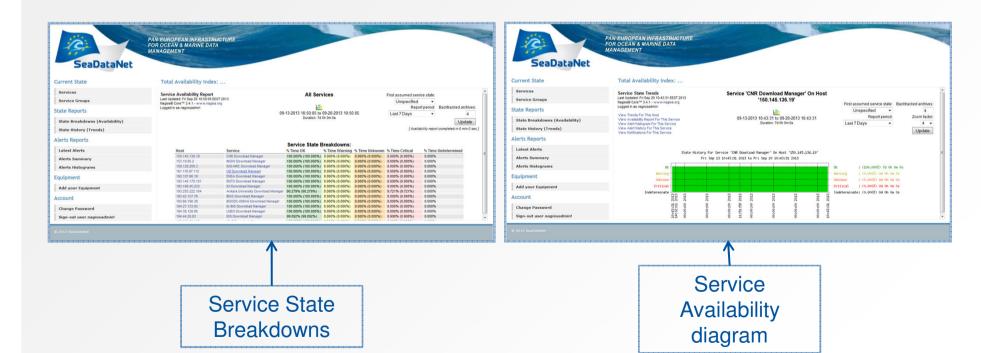
- ✓ Login using LDAP user authentication,
- √ Capability to change password
- ✓ View only capabilities of service(s) to portal users which are:
 - Visibility of the availability of their service(s) (simple users) or all services on a service group (group users),
 - Reporting the historical state records and alert response for later analysis,
 - State & Alert Histograms,
 - Latest Alerts report .
- ✓ Administration capabilities to portal administrator (schedule downtime events, enable/disable notifications, e.t.c),
- ✓ Request for a new equipment to be monitored, which is sent directly to portal administrator (HCMR),

Design & Development of Portal – Login & Current Service State



Design & Development of Portal – State Reports

Table & Graph reports of all Service(s) state using time period as criteria. The results are presented on percentage basis.

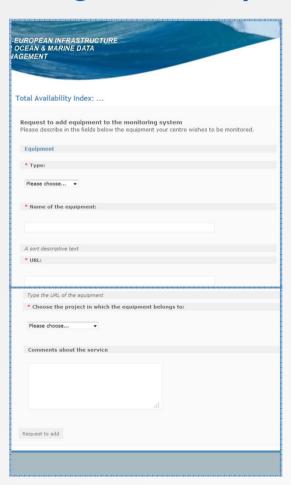


Design & Development of Portal – Alert Reports





Design & Development of Portal – Add Equipment Form



A new functionality that is implemented, is the capability of portal users to directly request for a new equipment to be monitored by Nagios. The portal's administrator will notify the user when the equipment will be monitored, and therefore can be viewed in the portal interface.

Portal's Status of work

We are currently improving the beta version of the portal. Hopefully this phase will be completed in October when the first version of the portal will be launched.



Future Plans

In our short term plans is to work on:

- ✓ adding new service types (CAS, Vocabularies) in nagios monitoting system,
- ✓ the definition & development of the global availability indicator which will also be incorporated in the portal (Phase VI)
- automatic generation of the availability reports (based on the global availability indicator)
- establish a mechanism to cross check alerts with OGS nagios system so as to avoid false alerts.

Thank you!

