# Measurements WG
# *(GT-Mediciones)*

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# Measurements WG Goals

- Build upon the work started in the previous period (03/2009 – 03/2011) by the Measurements WG.

- Deployment of a monitoring infrastructure based on perfSONAR

# Long Term Vision

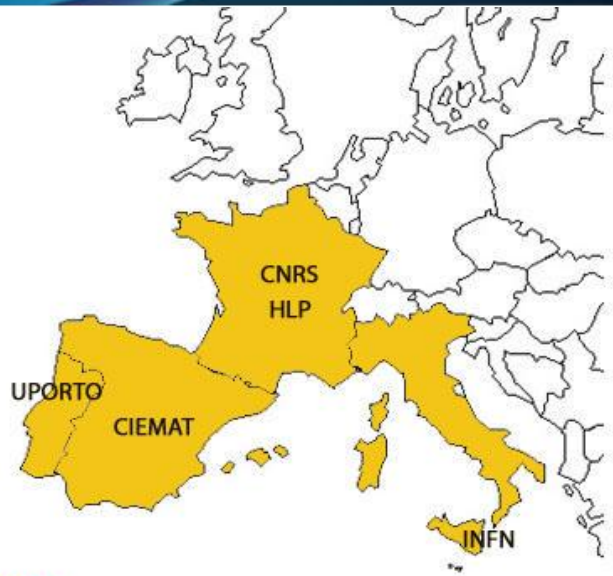
- Deployment of monitoring nodes in RedCLARA's backbone
- Deployment of at least two monitoring nodes in each NREN connected to RedCLARA
- Deployment of monitoring infrastructures in interested NRENs
- Instalation of monitoring nodes in end user institutions

# Proposed MPs in the Future Backbone

# Synergy with GISELA

- Grid Initiatives for e-Science virtual communities in Europe and Latin America
- www.gisela-grid.eu
- Objective:
  - To guarantee the long-term sustainability of the European – Latin American e-Infrastructure and thus ensure the continuity and enhancement of the Virtual Research Communities (VRC) using it.

# GISELA Sites


## Europe

| | |
|---|---|
| Italy | INFN – Catania |
| France | CNRS, HLP |
| Portugal | U.PORTO |
| Spain | CIEMAT (Coord. Institution) |

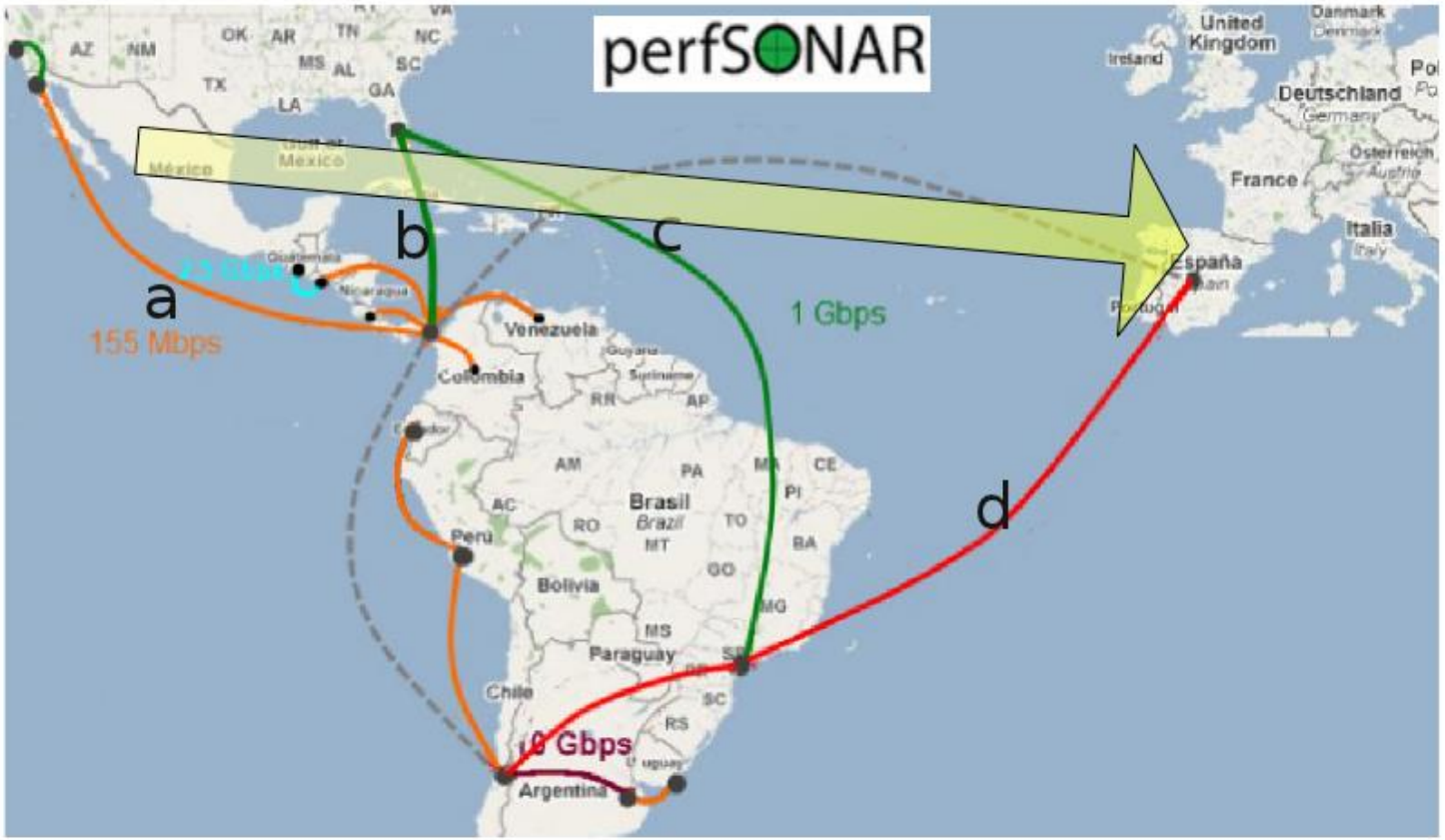
## Latin America and the Caribbean

| | |
|---|---|
| Argentina | INNOVA-T |
| Brazil | UFRJ, UFCG |
| Chile | REUNA |
| Colombia | UNIANDES |
| Cuba | CUBAENERGIA |
| Ecuador | CEDIA |
| International | CLARA |
| Mexico | CUDI, UNAM |
| Panama | CIDETYS |
| Peru | RAAP |
| Uruguay | UdelaR |
| Venezuela | ULA |

# GISELA's WP5 Action 2 Goals

- To install a monitoring platform and ticket system to manage the network resource provisioning requests and troubleshooting.
- The tool selected for the monitoring platform is perfSONAR.
- The objective is to install monitoring points in the Resource Centers in order to provide an end to end status of the network.

# MonGISELA Architecture (Monitoring WP5)



# Proposal

- In the previous WG the perfSONAR technology was disseminated among the institutions and NRENs involved in the WG.
- But, we should move forward:
  - Tests continuity
  - Help in deploying in the NRENs
  - Collaborate in the deployment in RedCLARA's backbone ASAP
  - Regular tests with other advanced networks

# Tasks

- Task 01: Deployment and tests with perfSONAR MDM
- Task 02: Deployment and tests with the most recent version of the perfSONAR Performance Toolkit (pS-PT)
- Task 03: Test the tools with IPv6
- Task 04: Interoperability tests between pS-PT and perfSONAR MDM
- Task 05: Recommendations on the software to be deployed for RedCLARA's backbone monitoring infrastructure
- Task 06: Elaboration of the maintenance procedures for RedCLARA's backbone monitoring infrastructure
- Task 07: Dissemination and Training in perfSONAR usage

# Task 01: Deployment and tests with perfSONAR MDM

- Deployment and tests with perfSONAR MDM (developed by Géant)
- Recommendation for the best solution to be deployed in RedCLARA's backbone

- Collaboration with Géant's team for the installation and test troubleshooting among our sites and with MPs in Europe

# perfSONAR MDM Deployments

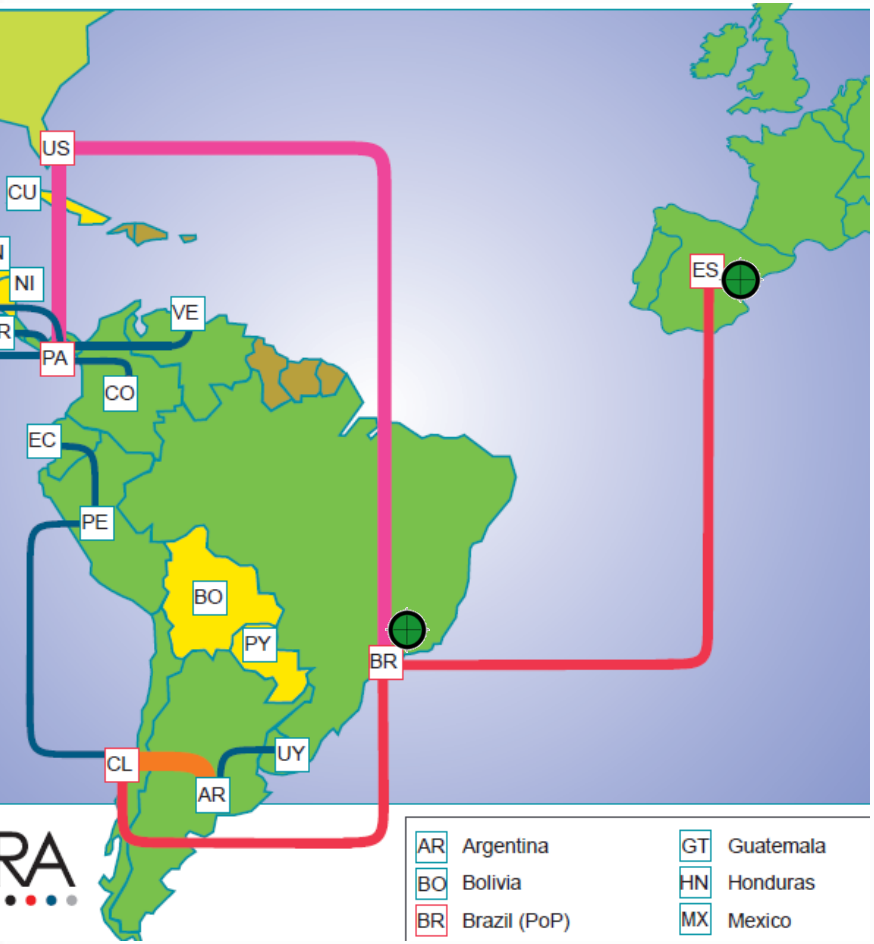

perfSONAR MDM
PART OF THE GÉANT SERVICES PORTFOLIO

- RedIris is operating the service
- DANTE is finalizing its implementation across the GÉANT backbone with 35 MPs in the PoPs across the network
- 7 NRENs are road-testing the service
- http://www.geant.net/service/PerfSONAR

# perfSONAR-MDM Status

- Version 3.3 is the latest stable release
- New Version:
  - Includes a new HADES MP and MA.
    - RPM Distribution ready
    - Debian Distribution in approximately 3 weeks
  - Currently the HADES MP in Madrid already supports OWAMP (answers to on-demand tests)
  - They are working on an OWAMP MP which should be available in about 6 months.
  - By the end of the year there will be a web based perfSONAR UI

# perfSONAR MPs in RedCLARA's SP PoP

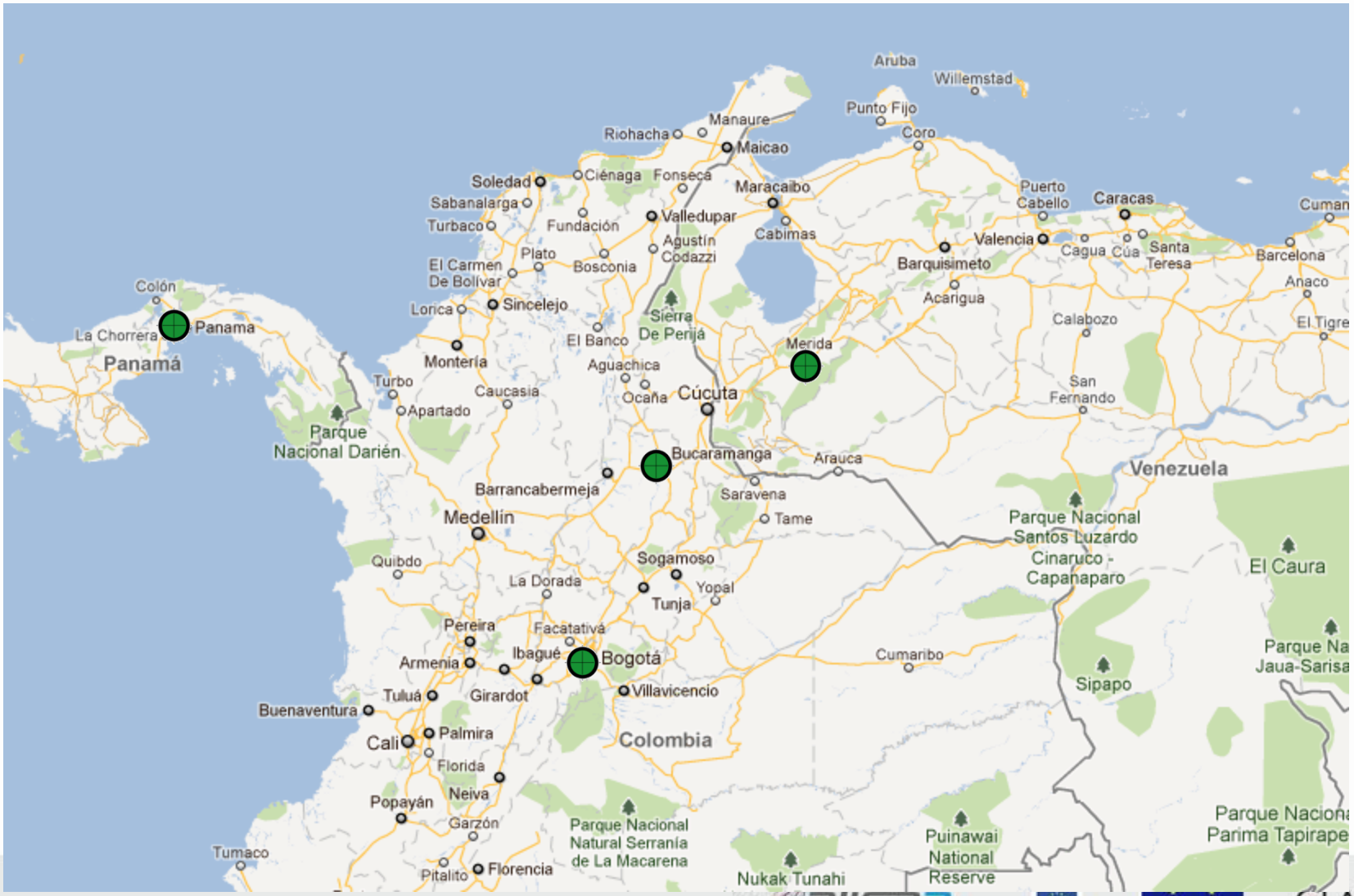



- Regular Delay and Bandwidth tests from SP to Madrid (international link)
- Data stored at Géant's MA
- It could allow also tests to the US (OWAMP support)
- Requires ASAP:
  - 2 servers
  - 1 GPS kit (for better precision on one way delay results)
  - @ SP's PoP

# perfSONAR MDM Independent Deployment in RedCLARA

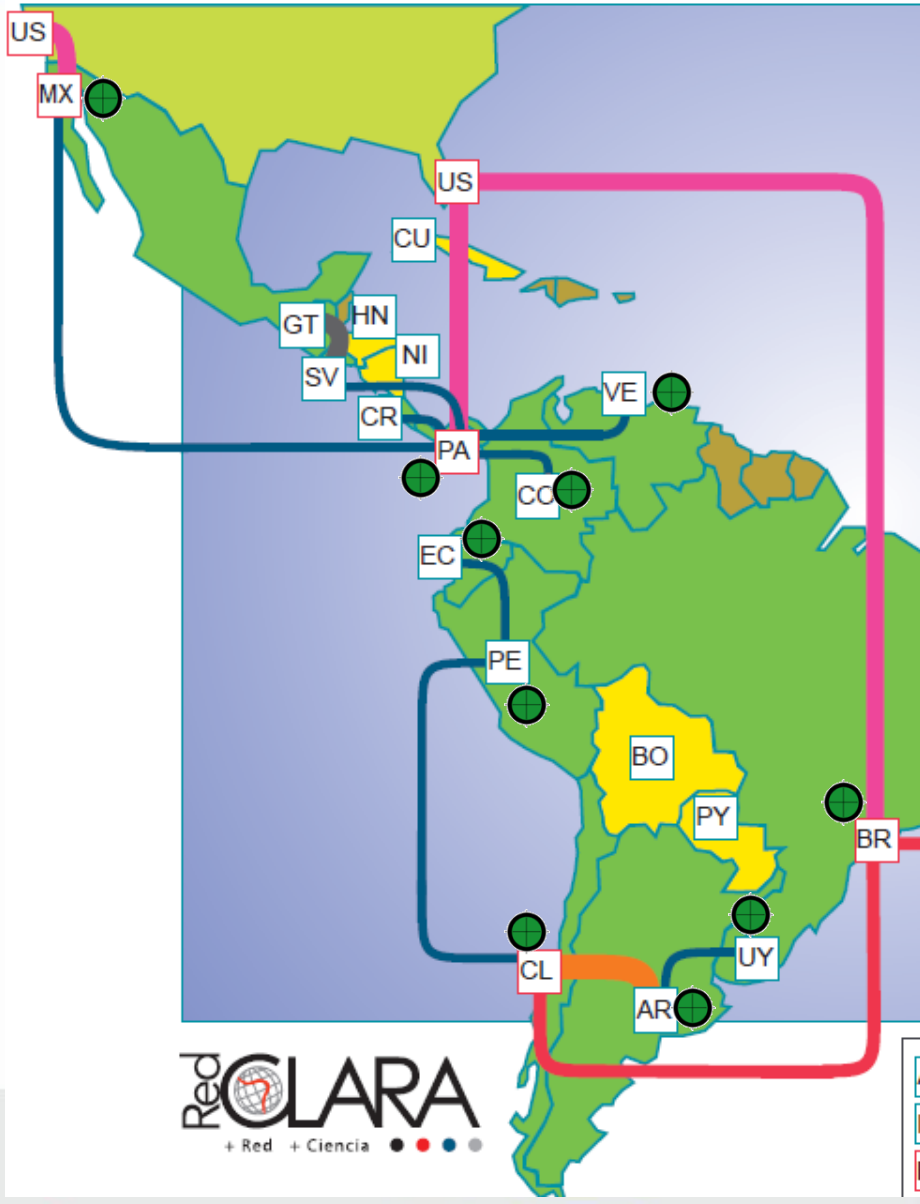
- Suggested set of services:
  - HADES MP (90 packets every minute)
  - BWCTL MP (tests every 6 hours)
  - SQL MA (data stored for 12 months)
  - These services could be configured in a static fashion without the need for a LS
  - It would be nicer if the services would be visible from other parties via a LS

# GISELA Proposed Initial MPs



# RedCLARA's perfSONAR MDM Experimental Deployment

- Please confirm your interest in participating in this Experimental Deployment
- Requirements:
  - Ideally two machines per site: BWCTL & HADES MPs and a GPS
  - These machines could be the first ones of a future NREN's Measurement Infra.



# Next Steps (perfSONAR MDM)

- Confirmation of sites and machine configurations for the experimental deployment (1 week – 15/11)
- Decide where the SQL MA and possibly LS will be deployed (1 week – 15/11)
- Schedule a webconf with Géant team for instructions on how to deploy and configure the services (2 weeks – ~22/11)
- Deployment, configuration and tests (IPv4 and IPv6) (December and January)
- Report elaboration

# Task 02: Deployment and tests with the most recent version of the perfSONAR Performance Toolkit (pS-PT)

- In the previous WG it was deployed and tested pSPT versions 3.1.2 and 3.1.3 based on a liveCD
- It is already available version 3.2 which allows the automatic installation in a HD via Net-Install
- Elaborate a report with the test results and considerations about its advantages and disadvantages

# Task 02: Deployment and tests with the most recent version of the perfSONAR Performance Toolkit (pS-PT)

- Tests at UNIFACS and ULA with version 3.2
  - http://pspt.nuperc.unifacs.br/toolkit/

# Task 03: Test the tools with IPv6

- In principle, both MDM and pSPT versions allow their utilization with IPv6
- However, some difficulties have been identified
- The proposed tests aims at testing the use of both versions with IPv6 in order to identify eventual problems/limitations

# Task 04: Interoperability tests between pS-PT and perfSONAR MDM

- This task aims at performing interoperability test between the two versions of perfSONAR: MDM and pSPT
- The motivation for these tests is to allow the NRENs connected to RedCLARA to decide to deploy a perfSONAR version distinct from the one which will be chosen for RedCLARA's backbone

# Task 04: Interoperability tests between pS-PT and perfSONAR MDM

- These tests will also be useful for interoperability with Internet2 e ESnet (in case MDM would be chosen for the backbone) or with Géant (in case pSPT would be chosen for the backbone)

# Task 05: Recommendations on the software to be deployed for RedCLARA's backbone monitoring infrastructure

- After performing tests with MDM, the new pSPT version, IPv6, and interoperability, we will be in position for recommending the most adequate version to be deployed at RedCLARA's backbone

# Task 06: Elaboration of the maintenance procedures for RedCLARA's backbone monitoring infrastructure

- Elaboration of the maintenance procedures for RedCLARA's backbone monitoring infrastructure
- Our proposal is that while we perform the tests for recommending the perfSONAR version to be deployed in production, CLARA would buy the equipment needed for deploying its backbone monitoring infrastructure

# Task 06: Elaboration of the maintenance procedures for RedCLARA's backbone monitoring infrastructure

- Therefore, we recommend that the operation both of the hardware and the software be made in cooperation between the WG, SEG and NOC.
- After this WG period, the operation would be transferred to the appropriate instances in RedCLARA's team

# Task 07: Dissemination and Training in perfSONAR usage

- This task consists in the preparation and execution of training courses to disseminate the knowledge and usage of perfSONAR tools and services.
- In this way we expect to create a critical mass which will allow the utilization of the available data (in the future) and the dissemination in the connected NRENs and end users.

# Task 07: Dissemination and Training in perfSONAR usage

- Proposed activities:
  - Update the already available courseware
  - Execution of in person training courses as well as video material in order to facilitate its dissemination

# Original Schedule

| | 2011 | | | | | 2012 | | | | | | | | | | | | 2013 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 08 | 09 | 10 | 11 | 12 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 01 | 02 | 03 | 04 | 05 | 06 | 07 |
| 1 – Pruebas con MDM | | | # | | # | | | | | | | | | | | | | | | | | | | |
| 2 – Pruebas con pSPT | | | | | | | # | | # | | | | | | | | | | | | | | | |
| 3 – Pruebas con IPv6 | | | | | | | | | | | # | | # | | | | | | | | | | | |
| 4 – Pruebas de Interoperabilidad | | | | | | | | | | | | | | | # | # | | | | | | | | |
| 5 – Recomendación para la troncal de CLARA | | | | | | | | | | | | | | | | | | # | # | | | | | |
| 6 – Procedimientos de Manutención | | | | | | | | | | | | | | | | | | | | | # | | | # |
| 7 – Difusión y Capacitación | | | | | | | | | | | | | # | | | | | # | | | | | | # |
| Reuniones | o | o | o | o | o | ox | o | | o | o | o | o | o | ox | o | o | o | ox | o | | o | o | o | o |

# Reviewed Schedule

| | 2011 | | | | | 2012 | | | | | | | | | | | | 2013 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 08 | 09 | 10 | 11 | 12 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 01 | 02 | 03 | 04 | 05 | 06 | 07 |
| 1 – Pruebas con MDM | | | # | | # | | | | | | | | | | | | | | | | | | | |
| 2 – Pruebas con pSPT | | | | | | | # | | # | | | | | | | | | | | | | | | |
| 3 – Pruebas con IPv6 | | | | | | | | | | | # | | # | | | | | | | | | | | |
| 4 – Pruebas de Interoperabilidad | | | | | | | | | | | | | | | # | # | | | | | | | | |
| 5 – Recomendación para la troncal de CLARA | | | | | | | | | | | | | | | | | | # | # | | | | | |
| 6 – Procedimientos de Manutención | | | | | | | | | | | | | | | | | | | | | # | | | # |
| 7 – Difusión y Capacitación | | | | | | | | | | | | | # | | | | | # | | | | | | # |
| Reuniones | o | o | o | o | o | ox | o | | o | o | o | o | o | ox | o | o | o | ox | o | | o | o | o | o |

# Required Resources

- Equipment for the measurement infrastructure deployment independently of the perfSONAR flavor which will be recommended for deployment.
- Details:
  - Two physical servers dedicated to monitoring and one synchronization kit for each PoP
  - Two servers for installing the central services

# Deployment Strategy
# 1st Phase: International End Points

# Deployment Strategy
# 2nd Phase: Main Ring

# Deployment Strategy
# 3rd Phase: Remaining PoPs

# Recommendation to the NRENs

- We propose a similar strategy to the NRENs:
  - Dedicated MPs at the NREN border
  - MPs at NRENs main PoPs
  - MPs at the remaining PoPs

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