

## **DataTAG WP4 meeting (29 July 2003)**

# **GLUE Domains and Network Service Schema implementation**

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## Introduction

Within the GLUE cooperation we studied an architecture to split a complex GRID into ad-hoc domains.

The criteria to individuate the components of a domain is that internal connectivity is better than the connectivity between neighbor domains.

The intent is to make available an *high level* view of the GRID whose maintenance and accessibility are inexpensive, compared with the low granularity of classical GIS.

The observations should be published using an existing GIS, although schemas may be slightly different from ordinary ones.

The domains topology is recorded into a MySQL database that can be replicated.

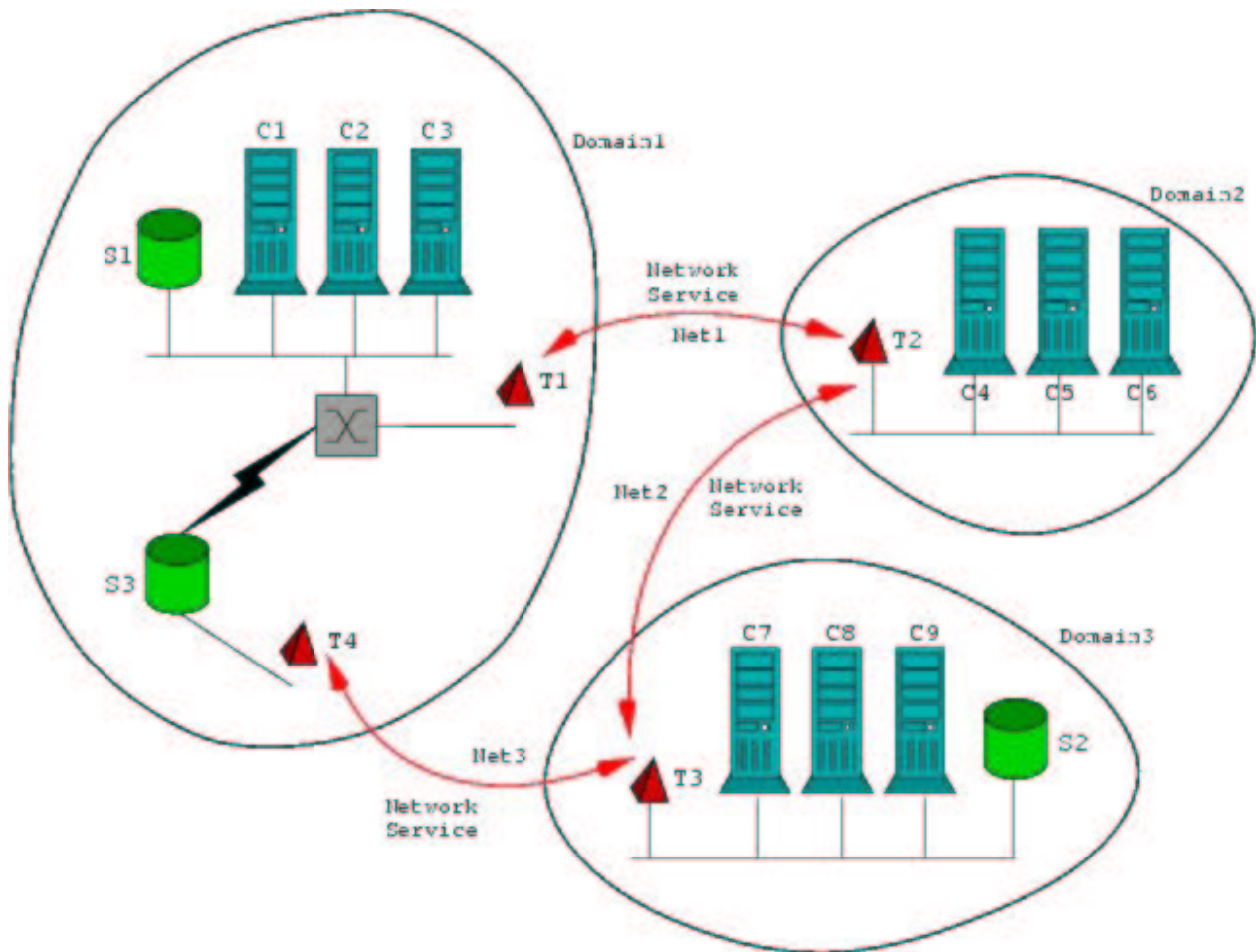
The design of the database has been supported by a UML schema.

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## GlueDomains Architecture (example)



Implementation and concept paper at [GlueDomains Home Page](#)

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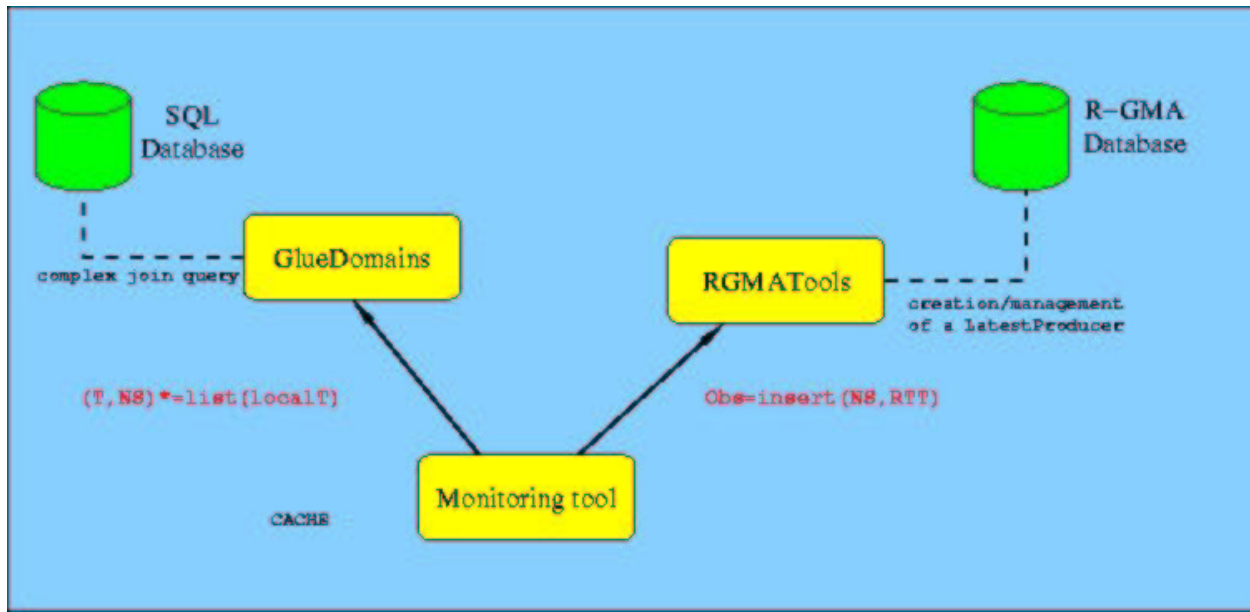
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## Application Scenario (monitoring tool)

A Monitoring Tool wants to record a network monitoring observation.



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## Anatomy of a theodolite

The internal structure of a *Network Monitoring Tool* running on a *Theodolite*: theo.pl

```
use strict;
use lib "GlueDomains";
use lib "GlueDomains/rgmacomplete";
use GlueDomains;

# Creates a GlueDomains database handle
my $server="glueserver.cnaf.infn.it";
my $gd=GlueDomains::new($server,"gluedomains","consumer","password2");
# Discover self GlueDomains identifiers (can be repeated for each interface)
my $myself="122.211.112.2";
my @edgeservicelist=EdgeService::getByInterface($gd,$myself);
# More than one identifier may exist to model different QoS
foreach my $t ( @edgeservicelist ) {
# Discover neighbor theodolites
    my @sessionlist=$gd->getTargetList($t);
    while ( my $session = pop @sessionlist ) {
        # initialize measurement session
        # ...
        # Create handles for RGMA producers
        my $networkService=@$session[1];
        my $rgmaRTT=rgmacomplete::RoundTripDelayTools->new($networkService);
        my $rgmaLost=rgmacomplete::RoundTripLossTools->new($networkService);
        while (1) {
            # Perform a measurement
            my @RTTdata=();
            my @RTLdata=();
            # Store measurement in R-GMA
            my $observation;
            $observation=RoundTripDelay->
                new($networkService->{id},"glueping",@RTTdata);
            $rgmaRTT->insert($observation);
            $observation=RoundTripLoss->
                new($networkService->{id},"glueping",@RTLdata);
            $rgmaLost->insert($observation);
        }
    }
}
```

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# Status

## Status

- A prototype has been setup and is running on a single host (using the loopback device). It consists of a GlueDomains server, an R-GMA server (with schema and registry part), a simple packet loss and delay Information Provider.

## To do:

1. extend the testbed to more hosts at CNAF, and others in Padova (or Padua);
2. replace LatestProducers with StreamProducers and complete the prototype architecture with a consumer;
3. re-format schemas to reflect GGF indications;
4. introduce new info providers (2-way jitter, one-way jitter and loss, one way bandwidth)
5. long term: store theodolites configuration in GlueDomains

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