

A Network Monitoring Framework in the SCoPE Project

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The network reliability appear to be a crucial factor to guarantee the distributed services availability and the proper system functioning of a Grid infrastructure.

The network performances can affect dramatically the job computation time in those applications that processing bulk of dataset and is obviously crucial during data replication activities.

Currently in the main Grid deployments, the network resource is considered as pure facility and the middleware components act agnostically to respect the network parameters, so that the Grid infrastructure working globally below the best effort threshold, if we considered the Grid, in the first approximation, as an integration of computational, storage and network resources.

In this work we present GlueDomain, a network monitoring framework created to support the middleware services by offering a set of measurement useful for general operations, bandwidth performance previsions and our deploy in the SCoPE infrastructure.

Provide a set of generic keywords that define your contribution (e.g. Data Management, Workflows, High Energy Physics)

Network, Monitoring, QoS, Metropolitan Grid,

3. Impact

The impact of the GlueDomains deployment is to optimize the use of the network resources and to provide a growing of the general performances during the data transfer operations.

The metropolitan wide implementation of a network measurement system, also offer the opportunity to study and to test the cooscheduling algorithms and to understand how the use of the network parameters can improve the performance of the “best effort” based Grid systems.

The the SCoPE framework allows having an excellent and complete testbed platform in which deploy and evaluate the new Grid services. So that the expected impacts due to the diffusion of this experience, will be related to the progress of the know-how about the potentiality to use the network measurements in more large environments.

URL for further information:

<http://www.scope.unina.it>

4. Conclusions / Future plans

The GlueDomains Framework has been deployed in the main sites of the SCoPE infrastructure and the measurements are in used by users and developpers for monitoring the network reliability and to test some network aware cooscheduling algoritms. Some new measurement tools are ready to be added to the framework. In the immediate future we plan to allarge the testbed and add new measurements tools to the environment with the feedback of the users and developers.

1. Short overview

The SCoPE project aims to create a metropolitan grid infrastructure, gLite based, among the departments of the University of Naples Federico II .

In this environment we have implemented and deployed GlueDomains, a network monitoring framework, in order to provide the measurements needed to support the network aware meta-scheduling algorithms and

the QoS of the network services. In this work we show as the use of network measurement can improve the performances in a the general purpose Grid.

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