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GENERAL COMPUTATION AND GRID TIER2 TOWARD LHC

Giuseppe Sava, Rosanna Catania, Emidio Giorgio,
Gianluca Passaro, Gianni Mario Ricciardi

INFN-Sezione di Catania, Dip. Fisica e Astronomia Università di Catania,
via S. Sofia 64, I-95129, Catania, Italy

Abstract

The "Network Services" working group was planned to improve synergy among the staff of the 'Computation and Network Division' and IT specialists of all the national and regional Grid teams operating inside the Department of physics of Catania. So also the IT general services can improve projects and performances:…towards LHC era..

Workshop CCRWS06 – Otranto (LE)

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1 INTRODUCTION

The poster we have presented at the workshop CCRWS06 in Otranto (LE) shows the activity of the new working group "Network Services" founded by the Division of Catania of I.N.F.N. inside the Department of Physics of University of Catania.

This working group joins persons belonging to the staff of the Computation and Network Division and to the group of the Alice Tier-2 and of the other IT groups that are developing grid architectures. So we can to examine and to improve general services of our Lans and to study new features that grid architecture requires.

Network monitoring, High Availability, new DNS architecture, ipv6 test and network access are the main items we are dealing with.

2 NETWORK MONITORING

First item was to update the monitoring site GIANO which since 2000 monitors hosts and network apparatus in our Lans. The starting point was the "Requirement of network monitoring for the GRID" (by Robin Tasker): "Immediate network monitoring:…a single view/access point of the available tools needs to be produced to allow a GRID user access to determine the "health" of the network. Such a snapshot of the network will likely include route information between specified end points; the characterization of the network using, for example, pathchar; and the means of measuring throughput… The pre-testbed sites are encouraged to develop this concept to demonstrate capability and to allow wp7 to further refine the ideas based upon their experience and input from the users of these products."

The general model for a management software consists of five principal points: performance management, fault management, security management, accounting management and network management.

So the first INFN-Grid Testbed monitoring system [1] was built around NetSaint [2], a scalable open source network monitoring package with a powerful web interface for view network status and problem history, simple plugins design to develop service checks, monitoring of services (ssh, http, ftp, pop3, etc…), possibility to define network host hierarchy using parent host with distinction between hosts that are down and those that are unreachable, distributed monitoring with a central server that obtains checks from one or more distributed servers, notifications via e-mail when service or host problems occur, event handlers.

Fig. 1 shows the home page of the first version of the monitoring web portal and fig. 2 shows the active geographic map with which is possible to control different Italian grid sites and single links of the network managed by GARR.

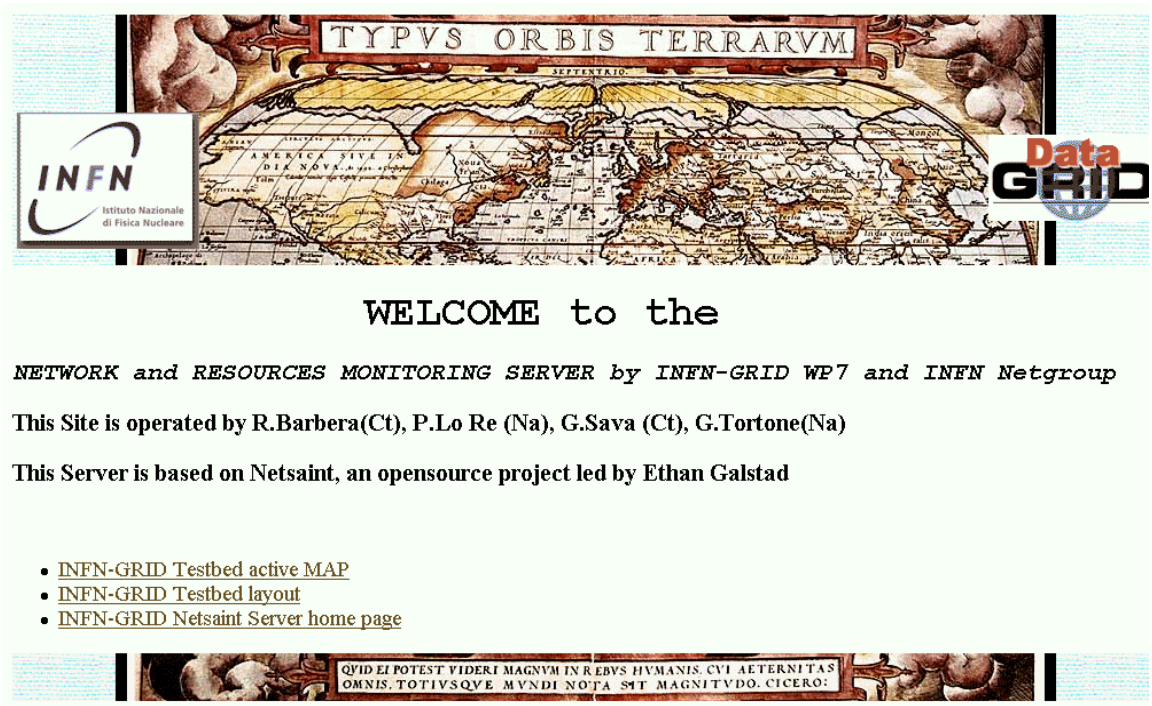

Fig.1. First version of the monitoring web portal.

Fig. 2. Active geographical map.

Grid Italy Apparatus and Network Observer (GIANO) [3] was the upgrade of the web portal with the new version of NetSaint, now called Nagios. When a host is in a critical state and the time specified in the host definition has passed since the last notification was sent out, Nagios sends out a notification to people defined for that host. Today GIANO monitors hosts and network apparatus of the departmental lan and of the grid architectures inside it [4]. Fig. 3 shows home page of the new web portal and fig. 4 shows a collection of layouts of GIANO.

Fig. 3. The GIANO home page

For each apparatus or host is possible to have historical information. Fig. 5 shows the trend of a network apparatus during 12 months.

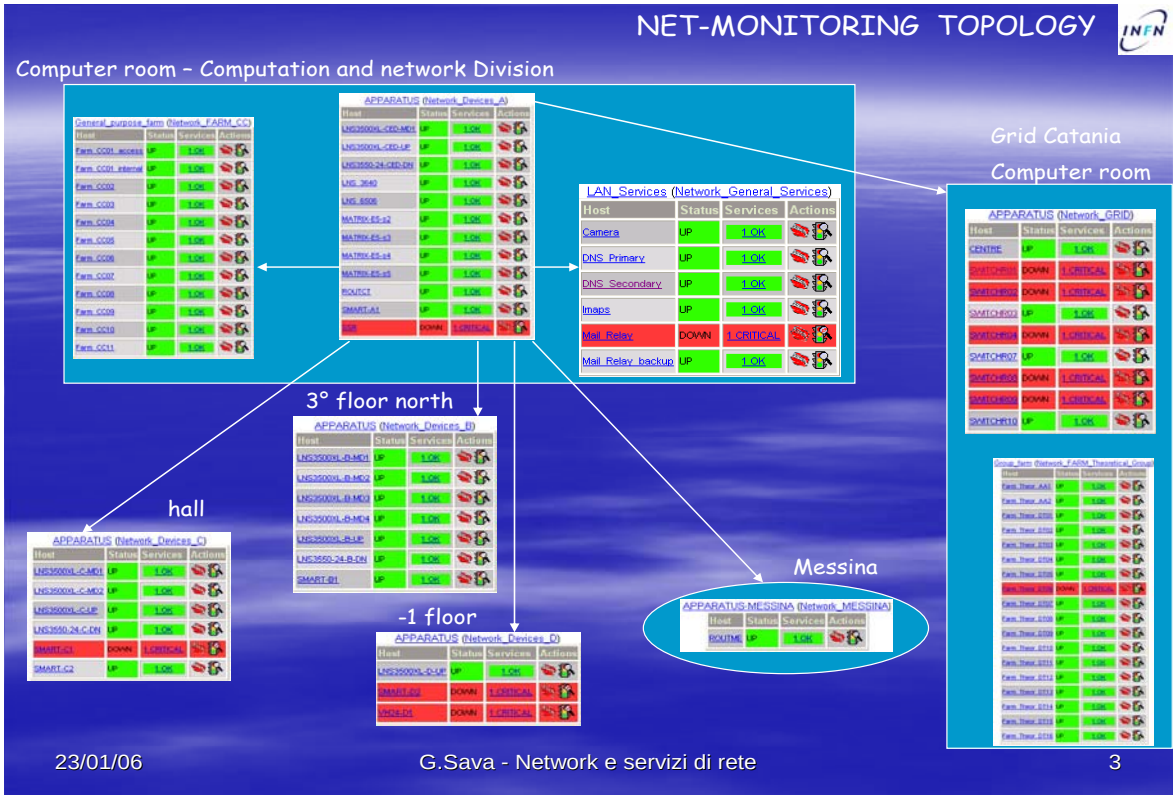

Fig. 4. A collection of layouts of GIANO.

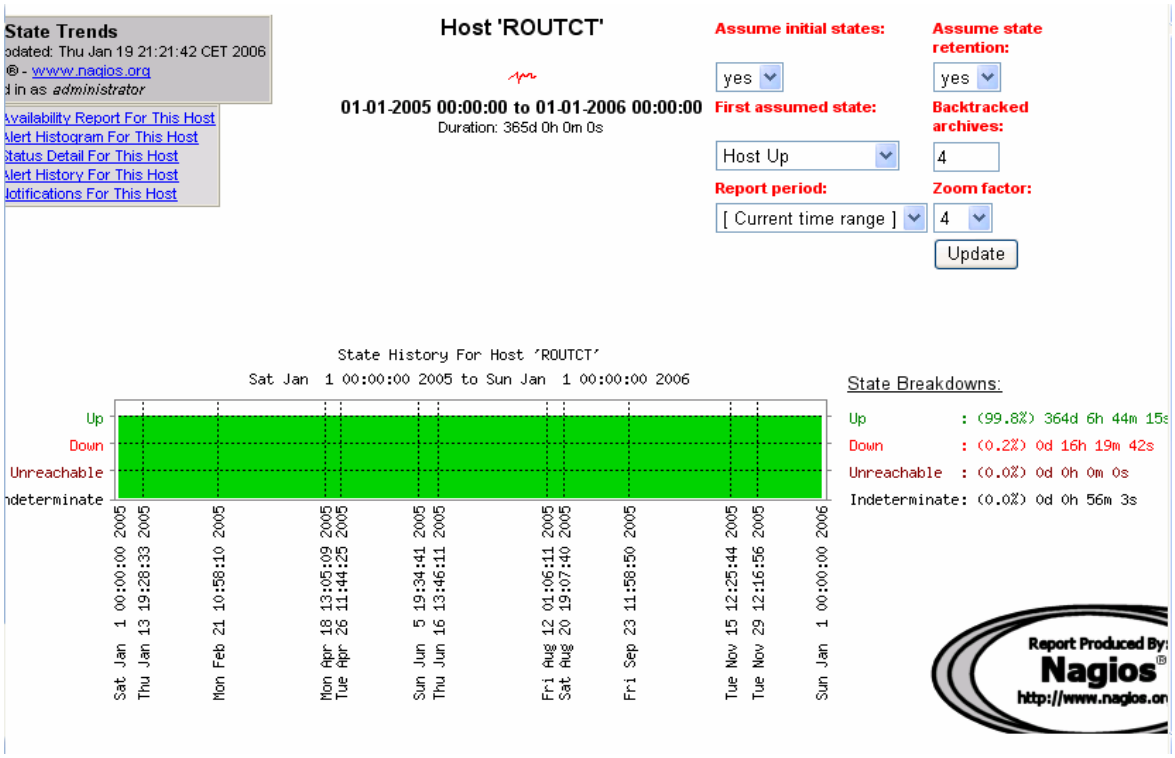

Fig. 5. Trend of a network apparatus.

3 WORK IN PROGRESS…

Nowadays Network Services working group is building the new monitoring portal to monitor not only hosts and services but also protocols and other network characteristics. Fig. 6 shows the home page of the prototype of the new site. New version of Nagios and Ntop open source code are under test.

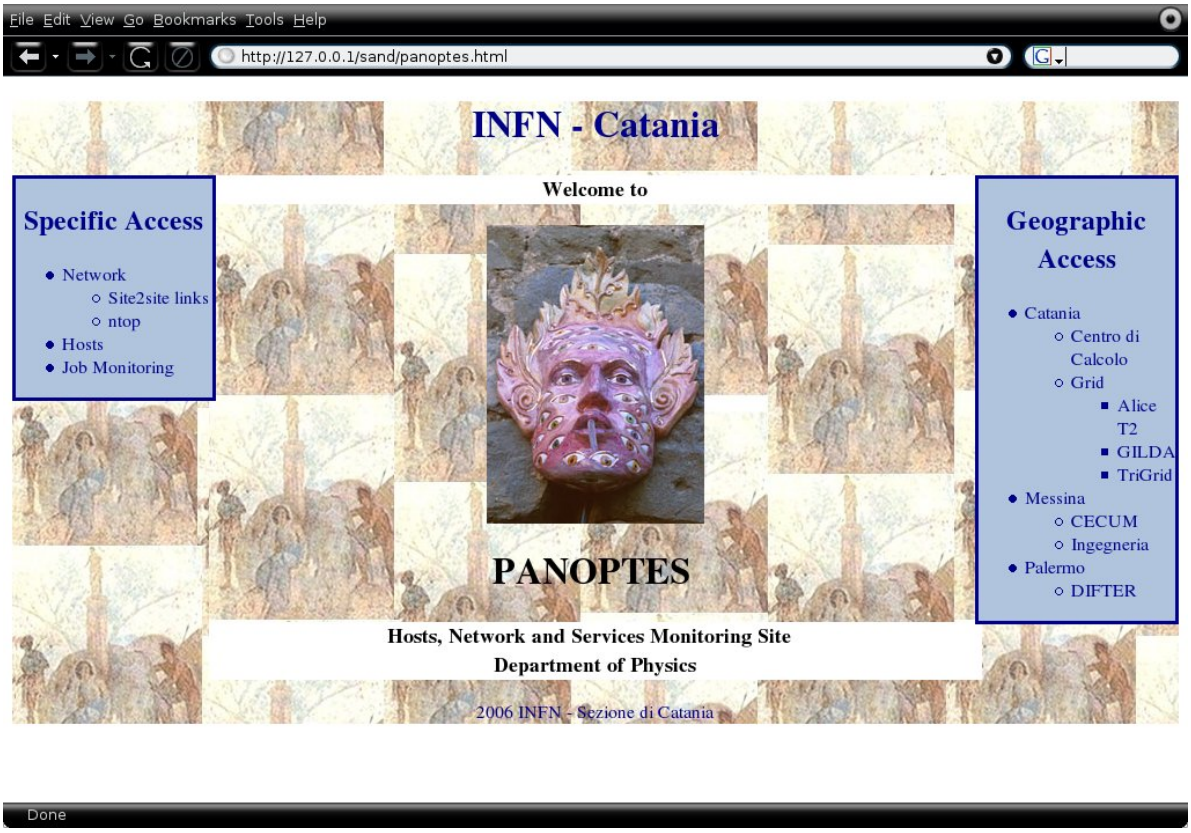

Fig. 6. Prototype of the home page of new portal.

Ntop is a network traffic probe based on libcap with an easy web interface. Ntop can sort network traffic according to many protocols and it can show network traffic sorted according to various criteria. With Ntop it is possible to store on disk persistent traffic statistics in RRD format and it is possible to identify the identity of computer users. Fig. 7 shows an example of view that Ntop can built to monitor the global protocol distribution of a lan.

Global Protocol Distribution

Protocol	Data	Percentage			
IP	25.5 GB	95.4%	TCP	25.2 GB	98.8%
			UDP	282.3 MB	1.1%
			ICMP	11.9 MB	0%
			ICMPv6	338.9 KB	0%
			OSPF	8.1 MB	0%
			IGMP	820.0 KB	0%
			Other IP	197.5 KB	0%
(R)ARP	788.8 MB	3.0%			
DLC	1.5 MB	0%			
IPX	8.9 MB	0%			
Decnet	12.6 MB	0%			
NetBios	3.6 MB	0%			
IPv6	775.3 KB	0%			
STP	31.2 MB	0%			
Other	152.1 MB	0%			

Fig. 7. A view of global protocol distribution with NTOP.

4 REFERENCES

(1) G.Tortone and G.Sava, NetSaint: una soluzione OpenSource per il GRID-monitoring, Bologna november 2001, Grid wp7 meeting.
(2) R.Barbera et al, Grid monitorino with NetSaint, Bologna january 2002, Datagrid wp7 meeting.
(3) R.Alfieri et al, The INFN-Grid Testbed, 2005, FGCS 21 (2005) 249-258.
(4) G.Sava, Network e servizi di rete, Catania gennaio 2006, Referaggio del Tier2 dell'esperimento Alice a Catania.