An Identity Server Portal for Global Accelerator (GAN) and Detector (GDN) Networks

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Abstract

The next generations of large colliders and their experiments will have the advantage that groups from all over the world will participate with their competence to meet the challenges of the future. Therefore it's necessary to become even more global than in the past, giving members the option of remote access to most controlling parts of this facilities. The experience in the past has shown that a number of problems result from the existing variety of computer systems and their graphical user interfaces which are incompatible to other systems and the possible options to reach them from outside the experimental area. A group at Trieste and DESY is working inside the GANMVL (Global Accelerator Network Multipurpose Virtual Laboratory)project to solve this problem, finding a simple way for the consumer to have remote access with single sign-on personalization and admission to several systems. We determine problems arising in the implementation of user friendly interfaces, in achieving a look and feel close to the real hardware and in handling software. Also in the future it should be possible to have access simply via any Internet browser, without any knowledge about the computer operating systems inside the large facilities. Only one login procedure should be necessary to have access to every integrated system. The current project status shall be outlined.

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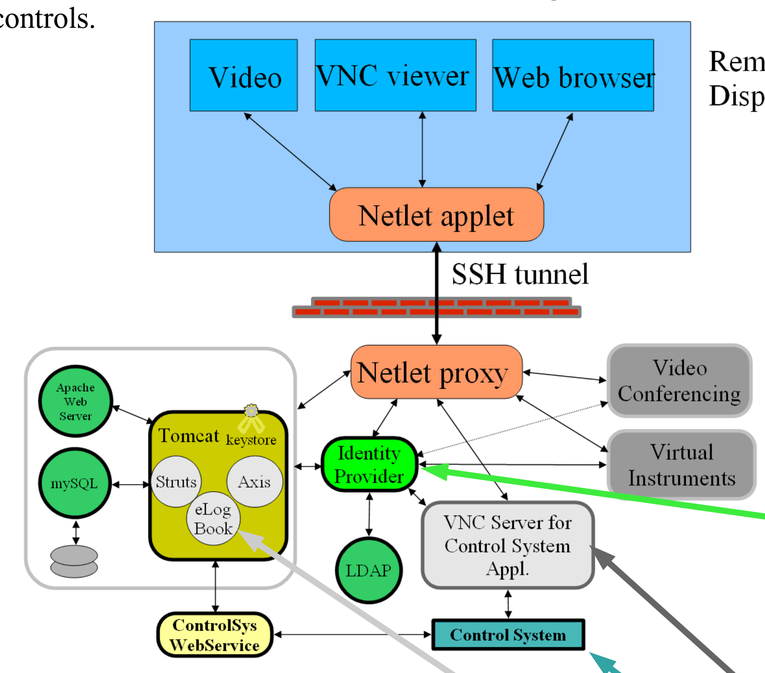
The goal of GANMVL
is to design and build a system with several tools for remote control actions and observation of accelerator facilities including their experiments.

Virtual instruments, electronic logbooks, high quality video and audio systems for eye-contact video conferences with the latest MPEG-4 based technology (which is not available on the market up to now) will also included in this tool as file and information sharing for accelerator and detector controls.



Netlet
is an applet that runs on the browser and enables a secure connection between an arbitrary client on a system that is running a Java-enabled browser, and a network resource behind a corporate firewall. The client can be behind a remote firewall and SSL proxy, or directly connected to the Internet. Netlet can provide secure access to fixed port applications and some dynamic port applications that are available on the intranet from outside the intranet. All the secure connections made from outside the intranet to the intranet applications through the Netlet are controlled by Netlet rules.

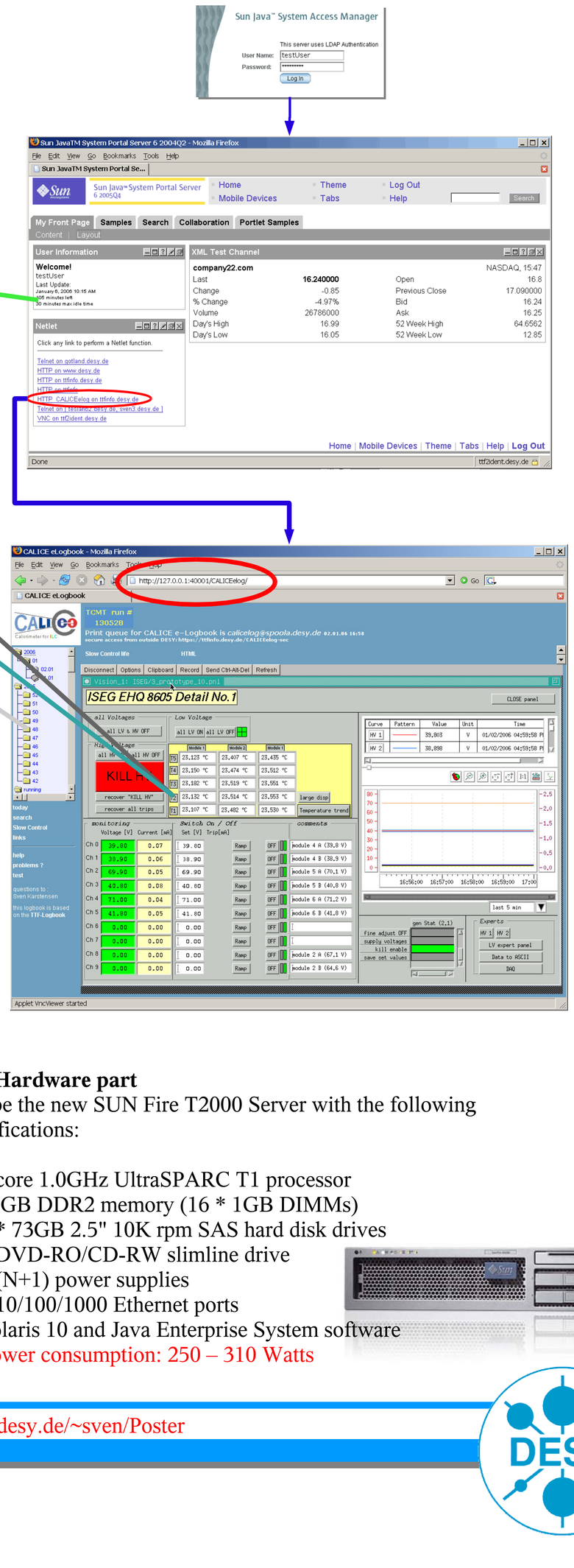
The portal server schema
includes two client browsers, redirected by a load balancer, which sits in the demilitarized zone (DMZ), to one of two gateways, also located in the DMZ. `Client_1` is performing a NetFile transaction. The NetFile traffic is routed by `Gateway_1` to `Portal_Server_1`, whose Rewriter proxy directs the traffic to `Host_1`. `Client_2` is performing both Netlet and NetFile transactions. `Client_2`'s Netlet and NetFile requests are handled by `Gateway_2`, which routes the traffic to `Portal_Server_2`. The Rewriter proxy on this host directs the NetFile traffic to `Host_2`. The Netlet proxy on this host directs the Netlet request to `Application_Host_3`.

The User Interface
is much more easier to understand for the user, than the structure. We have here a simple login window, which is standing for the SSO (single sign on) procedure.

After logging in, a portal server window comes up, which gives the several possibilities of different tasks.

The third screenshot shows than the electronic logbook, including a frame with a PVSS control system application, running on LINUX, accessible via VNC.

All this is tunneled by Netlet, visible in the browser location bar: 127.0.0.1 at port 40001 on your localhost.



The Hardware part
will be the new SUN Fire T2000 Server with the following specifications:

- 8 core 1.0GHz UltraSPARC T1 processor
- 16GB DDR2 memory (16 * 1GB DIMMs)
- 2 * 73GB 2.5" 10K rpm SAS hard disk drives
- 1 DVD-RO/CD-RW slimline drive
- 2 (N+1) power supplies
- 4 10/100/1000 Ethernet ports
- Solaris 10 and Java Enterprise System software
- Power consumption: 250 – 310 Watts

Get the much more detailed paper at http://www.desy.de/~sven/Poster