



Contribution ID: 152

Type: Poster

LiveWN: CPU scavenging in the grid era

Describe the scientific/technical community and the scientific/technical activity using (planning to use) the EGEE infrastructure. A high-level description is needed (neither a detailed specialist report nor a list of references).

The goal of this research is to introduce a bootable CD and DVD as an easy and versatile way to provide and use gLite-based Grid resources without the need of any OS installation or middleware configuration. At the same time it provides an excellent training tool for newer Grid users and a flexible playground for people that want to experiment, without enforcing any installation or expert knowledge. We have been testing it thoroughly under different circumstances with firm success.

Report on the experience (or the proposed activity). It would be very important to mention key services which are essential for the success of your activity on the EGEE infrastructure.

LiveWN was prototyped in 2006 as a grid-bootable CD supporting diskless, easy-to-deploy worker nodes and requiring virtually zero administration upon deployment.

The system mixes key technologies including LiveCD (a self-booting Linux CD), gLite (the grid middleware stack), OpenVPN (virtual private network) and OpenAFS (open distributed filesystem), proving that the initial concept was correct and workable and efficient enough to dynamically provision for worker nodes and user interfaces, without having to resort to a hard-disk installation. This “grid distribution” was simple enough to run even from a USB stick. During testing, it became clear that there was a need for two solutions: a CD format called LiveWN; and a DVD format called gLiteDVD.

gLiteDVD has a much larger footprint and it is a superset of LiveWN. On top of LiveWN, it includes a full desktop environment and some extra scientific software, including tools from high energy physics project ATLAS, Wine, PovRay and others.

Describe the added value of the Grid for the scientific/technical activity you (plan to) do on the Grid. This should include the scale of the activity and of the potential user community and the relevance for other scientific or business applications

What if grid nodes were as simple to run as music on a compact disk player?

What if a new cluster involved zero installation and only minimal—if any at all—configuration?

What if setting up that new cluster took only a few minutes?

If all this were true, we would be able to readily exploit the idle time of publicly funded computers, such as those in libraries and universities. We could share resources among arbitrary users, Internet Service Provider members or Open Source Software projects. We could rapidly multiply computing power for urgent tasks. We could quickly and easily train novice users.

LiveWN can address all these features through its adaptable scavenging mechanism.

It will perhaps become apparent once the large LHC experiments start processing their huge datasets during 2008 and other research fields enter the E-Science realm:
all embarrassingly parallel problems should ideally use the resources of dormant computing resources in public institutes and volunteers' systems!

Abstracts for online demonstrations must provide a summary of the demo content. Places for demos are limited and this summary will be used as part of the selection procedure. Please include the visual impact of the demo and highlight any specific requirements (e.g. network connection). In general, a successful demo is expected to have some supporting material (poster) and be capable of running on a single screen or projector.

The demo activity will include distributing a number of LiveWN CDs, DVDs or even USB sticks to interested individuals with a laptop, and show them how easy it can be to become part of the grid within a few minutes, only by booting with that media.

The solution should be expected to work fairly well with most laptops; with the exception of wireless network cards, of whom a fraction might present driver compatibility problems. For this reason we hereby suggest that a switch with network cables will be necessary, so that everybody can enjoy the LiveWN grid experience regardless of his hardware. Needless to say, there is a need for upstream internet connection, a NAT'd private address space won't be a problem though.

Poster, newsletter, website and papers all exist, so outreach material shouldn't be a problem:
<http://gridathome.sf.net>

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Track Classification: Demo and Poster session