# Status of proposal and implementation of a mechanism to make environment information available to jobs on a WN

- Original proposal by HEPiX virtualization working group for virtual machines
- Proposal made on 14/1/2011 by Tony Cass
- Prototype implementation at CERN in production since 4/2011 for LSF
- Found to be useful for physical nodes as well
- Proposal picked up to deal with multi-core jobs
- Redone and documented the specifications over summer 2012

**See also the presentation by  Tony Cass, GDB June 2012**

**The specifications can be found here:**

*https://twiki.cern.ch/twiki/bin/view/LCG/WMTEGEnvironmentVariables*

Currently still marked as "draft" but very close to final...
(Feedback is still possible)

For each job two **environment variables** are set pointing to a local directory:

$MACHINEFEATURES
Points to a directory containing worker node specific information

$JOBFEATURES
Points to a directory containing job specific information

CERN**IT**
Department

## Files in $MACHINEFEATURES/

*hs06*   : host HS06 rating in its current configuration
*shutdowntime* shutdowntime, Unix time stamp (in seconds), if the machine is being drained
*jobslots* Number of job slots of this machine
*phys_cores* Number of physical cores
*log_cores* Number of logical cores (if SMT enabled)

# $JOBFEATURES

## Files in $JOBFEATURES/

*cpufactor_lrms*       normalization factor as used by the batch system
*cpu_limit_secs_lrms*    CPU limit in seconds, normalized
*cpu_limit_secs*         CPU limit in seconds, real time
*wall_limit_secs_lrms*   run time limit in seconds, normalized
*wall_limit_secs*        run time limit in seconds, real time
*disk_limit_GB*          scratch space limit in GB
*jobstart_secs*          job start time, unix time stamp (seconds)
*mem_limit_MB*          memory limit (if any)
*allocated_CPU*         number of allocated CPUs to the job

**Torque 2.5:**

http://www.nikhef.nl/~janjust/wn-env/wlcg-wn-env-torque-0.2-1.rhel5.noarch.rpm

**PBS 2.3:**

http://www.nikhef.nl/~janjust/wn-env/wlcg-wn-env-pbs-0.2-1.rhel5.noarch.rpm

**PBS Professional and Grid Engine:**
Contact Manfred Alef from KIT

**LSF:**
Contact me

Any other implementations already out there?

CERN IT Department

**LSF version limitations:**

Can't use batch system queries to retrieve information, hence relies on getting the information from somewhere else

- Parse local LSF configuration files
- Hard-coded convention on the number of job slots per node following site policies
- Get HS06 rating from Quattor created local file
- Patch to CERN specific job starter script to set environment variables
- Currently integrated into the LSF deployment scripts at CERN

CERN:    LSF version following latest specs

NIKHEF: PBS/Torque

KIT:  GridEngine/PBS professional

# What is next ?

- Collect feedback on existing implementations

- Finalize specifications

- Update implementations

- Continue deployment