

A System For Automatic Installation Of Libraries In gLite Grids

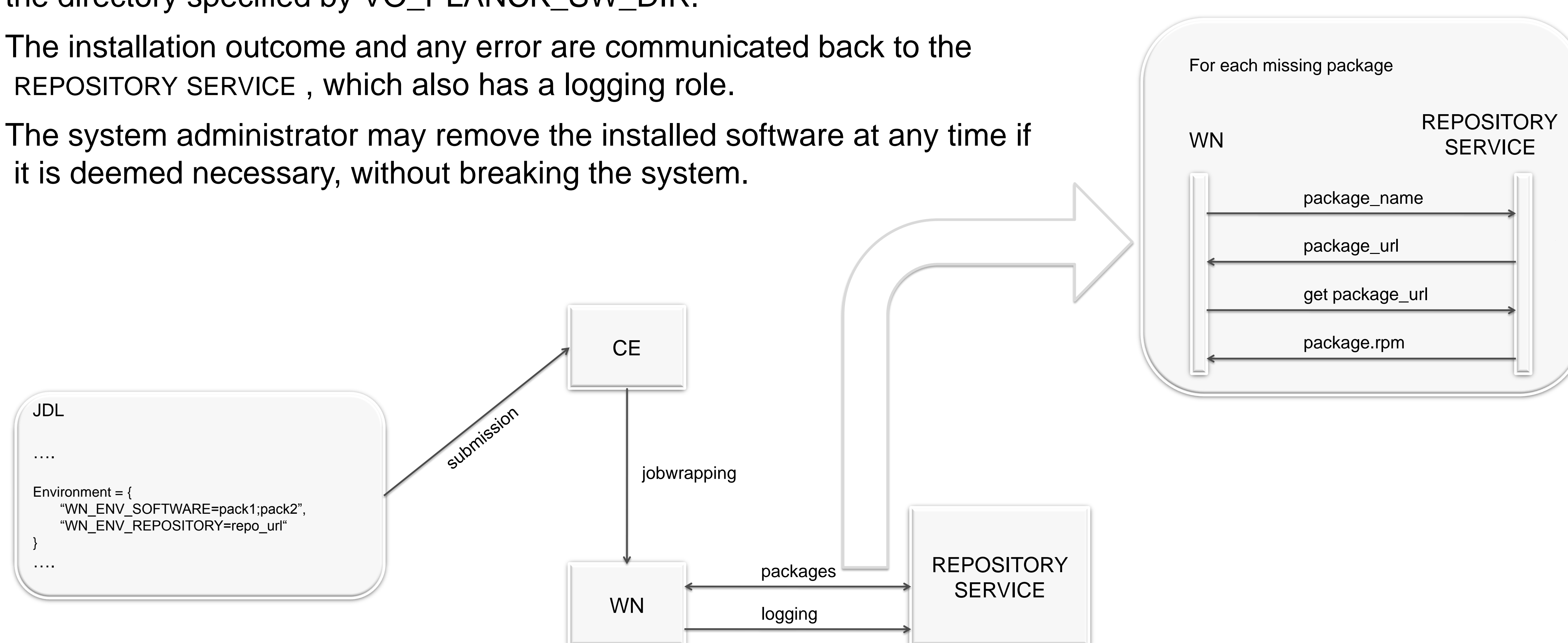
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Overview

- This is a design study about a system for the automatic installation of packages in the gLite grid.
- If an application needs external libraries, there are two solutions:
 - static linking during compile time
 - installation by the local system administrator of the libraries, at the system-wide or VO-specific level.
- This study is about a system that allows on-the-fly installation of a job's missing packages.

The design study

- VO-centric solution.
- Integrated into the system, without changing existing components. The modifications are made in the jobwrapper.
- The user needs only to set two environment variables:
 - WN_ENV_SOFTWARE: contains a semicolon-separated list of packages to be installed;
 - WN_ENV_REPOSITORY: contains the URL of the repository service.
- Just before the wrapper runs the specified executable, a check is made that all packages in the specified list are installed, either system-wide or VO-specific.
- If a package is not installed, the REPOSITORY SERVICE is asked for the URL to download it, and then it gets installed in the directory specified by VO_PLANCK_SW_DIR.
- The installation outcome and any error are communicated back to the REPOSITORY SERVICE, which also has a logging role.
- The system administrator may remove the installed software at any time if it is deemed necessary, without breaking the system.



Conclusions

- The tools providing automatic installation of requested software removes any intervention by local administrators; end users can carry out this task on their own.
- The task the end user must carry out is very simple. Users just specify the set of libraries requested for their jobs.
- Since the REPOSITORY SERVICE may collect statistics concerning the utilization of the various libraries, libraries that are used more often become good candidates to be officially supported and deployed along with the standard WN build.