

# Porting gLite to Itanium

## Problems, Status, Future Work

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# Outline

- 1 Overview
  - What is gLite?
- 2 Objectives
- 3 Problems
  - Most frequently found problems
- 4 Status Report
- 5 Future Work
- 6 Summary

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# gLite Overview

- Grid Middleware developed at CERN
- Natural successor of LCG (LHC Computing Grid) and DataGrid
- Makes use of a number of other projects. Most prominent: Globus Toolkit, CondorG, and others.

## gLite Metrics

Total Physical Source Lines of Code (SLOC) 718,569

### SLOC Grouped by language

C++	222569 (30.97%)
Java	175384 (24.41%)
Ansi C	163461 (22.75%)
Perl	73799 (10.27%)
sh	45682 (6.36%)
Python	32885 (4.58%)
Yacc	3635 (0.51%)
Lex	335 (0.05%)
Others	819 (0.10%)

Number of Modules 221

## Task Description

- Port as much as possible from IA32 to IA64
- Get Cruisecontrol to work under IA64  
(`java.lang.OutOfMemoryError`)

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# Problems in the Build system

- Linking static libraries into shared ones
  - On IA32 one can do this, on IA64 this fails. Anyway, it's not clean at all and should be considered a bug.
  - We suggest to deprecate the use of `ranlib` and use `libtool` instead.
- Omitting the `-fPIC` option
- Assuming a specific platform: `-march=i486`
- Assuming a specific path: `/opt/edg`
- CruiseControl

## Problems in the Source code

- Had to provide our own version of `globus_config.h`
- Omitting required includes (`unistd.h`, `signal.h`, `pwd.h`, ...)
- We only tried to make it compile for now. When testing the packages we'll probably see more 'interesting' things happen.
- Missing IA64 versions: Gsoap, CGI-gsoap, Condor, Classad, SWIG, Oracle, JDBC, glib2-devel, myproxy (resolved; partially upgraded to more recent versions)

## Status when starting our work

- Started porting on 08/17/2005, operating on the 'glite\_R\_1\_3\_0' tag
- Statistics (generated on 09/21/2005 using the 'glite\_branch\_1\_4\_0' branch; **without** our patches):

Total	221		
Passed	87	39%	
Failed	134	61%	

## Current Status

- Operating on the 'glite\_branch\_1\_4\_0'
- Statistics (generated on 09/22/2005; **with** our patches applied):

Total	221	
Passed	163	74%
<b>Failed</b>	<b>58</b>	<b>26%</b>

- → 76 modules fixed (build only)
- Some of the patches went into the CVS branch already.

## Short-term Tasks

- Bring pending patches into the CVS main branch.
- Those not being ready for inclusion into the main branch will be collected in a separate IA64 branch.

## Mid-to-long-term Tasks

- Reach status of 100% of the modules building.
- Thoroughly test the modules.
- Generalize patches such that they can be incorporated into the main branch.

# Summary

- The Cruisecontrol problem has been resolved. Developers can check themselves whether their modules fail on IA64.
- Big progress was made resolving problems that stopped building on IA64. Most of the problems were found in the build system.
- More effort required to have the IA64 port production ready.
- Thanks to **Marian Zurek** and **Andreas Unterkircher** for their support!