Grid Engine DRMAA API

Introduction

GGF WG status

DRMAA C binding

DRMAA in 6.0 and Demo

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www.drmaa.org

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Why DRMAA?

- Adoption of distributed computing solutions in industry is both widespread and 'early adopter':
  - Commercial applications by Independent Software Vendors (ISV)
  - Commercial distributed resource management (DRM) systems
  - Scripted command-line integration by end users
  - Very little direct interfacing of ISV apps to DRM systems

Why DRMAA?

- DRM adoption is self-limiting to industries where gain exceeds the pain of integration
- Fundamental shift in the adoption pattern requires shifting DRM integration to the ISV
- ISV customers must be able to use DRM of their choice

What is DRMAA?

- DRMAA is an API spec worked out by GGF DRMAA-WG
- Spec covers DRM core services as seen from users perspective
- No admin interface, focus is on those interfaces end users need
- Operations are: Describe job, submit, synchronize with job end, get job finish information, status query, change state

DRMAA-WG Charter

"Develop an API specification for the submission and control of jobs to one or more Distributed Resource Management (DRM) systems. The scope of this specification is all the high level functionality which is necessary for an application to consign a job to a DRM system including common operations on jobs like termination or suspension. The objective is to facilitate the direct interfacing of applications to today's DRM systems by application's builders, portal builders, and Independent Software Vendors (ISVs)."

Status of DRMAA?

- Agreed by Intel, Sun, Veridian/Altair, IBM, United Devices, Entropia, ...
- DRMAA language independent spec
  http://www.drmaa.org/docs/ggf-rec-drmaa-1_0.pdf under GGF review (GWD-R)
- DRMAA C language binding spec (draft)
  https://forge.gridforum.org/tracker/?group_id=90&atid=608&aid=214
- DRMAA Java language binding spec (draft)
- 24-month 'operational experience' period soon ahead

DRMAA C binding

- same set of operations as in language independent spec
- no surprise: one C function per DRMAA operation
- to model string output vectors addt'l opaque datatypes and access functions were necessary

Grid Engine 6.0 DRMAA C binding

- Grid Engine 6.0 extent:
    - DRMAA C binding shared library
    - C header file "drmaa.h"
    - DRMAA man pages
    - Sample application

About DRMAA implementation

- Library internal thread waits for events to implement drmaa_wait(3)
- Stable source snapshot for developers and more impl details available via
  http://www-unix.gridforum.org/mail_archive/drmaa-wg/2003/07/msg00004.html

DRMAA C sample application

- Control flow
  - library init
  - Prepare job template
  - submit job template as single and bulk job
  - synchronize with jobs to finish
  - reap and report job finish information
  - library exit
- Sample application is part of DRMAA C binding document

Demo

- Run sample application ...

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