DG@PUTRA: AN EXPERIENCE IN INTEGRATING DESKTOP AND SERVICE GRID AT UNIVERSITI PUTRA MALAYSIA

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Motivation

• For past few years Universiti Putra Malaysia (UPM) has been actively promoting Grid Computing (i.e. Service Grid) as the foundation for e-science research to another universities/institutes in Malaysia under AcademicGrid Malaysia.

• The action is very important to harmonize all (computing and storage) infrastructure for research by using right platform to avoid problem in the future.
Academic Grid Malaysia
Academic Grid Malaysia
Why Desktop Grid?

- Existing configuration only support Linux-based application.
- Service Grid maintenance cost is relatively high.
- As complement to Service Grids, HPC centers, supercomputers in case of bag of tasks, parameter sweep, monte-carlo type applications.
- As a low-cost and green computing alternative.
Road to Desktop Grid…

- One of DesktopGrid VO resource contributor
- Workshop and Seminar on Desktop Grid Computing
  - In collaboration with DEGISCO - IDGF
  - 27-30 September 2011
  - Hosted at Universiti Putra Malaysia
  - Participant from Academic Institution and Government Agency
  - Focus on setup a Desktop Grid based on SZDG-Boinc release and application porting with Genwrapper
Road to Desktop Grid…
Implementation Recipe..

• One-way job flow direction (Desktop Grid (DG) -> Service Grid (SG) )
• SZDG-BOINC release
• 3G-Bridge version 1.6 (with some modification)
• gLite-UI 3.2
• BLAST application (ported to BOINC with GenWrapper) for testing
About EDGeS 3G Bridge

- EDGeS 3G Bridge is a grid bridge innovation from Enabling Desktop Grid for E-Science (EDGeS) that enable Desktop Grid and Service Grid connection.
- There are two ways of connections:
  - Desktop Grid to Service Grid (DG->SG)
  - Service Grid to Desktop Grid (SD->DG)
- For DG->SG, the EDGeS 3G Bridge shall be installed with EMI-UI
- For SG->DG, the EDGeS 3G Bridge shall be installed as BOINC project
EDGeS 3G Bridge Architecture
EDGeS 3G Bridge Architecture
Implementation

Job Flow

Academic Grid Resources

Workload Management Server

3G Bridge

BOINC Server

BOINC Client
Implementation
Result

About DG@Putra

Putra Desktop Grid is UPM implementation of DesktopGrid network, consist of computers at lab and local volunteer. The project is fully supported by the International Desktop Grid Federation (IDGF).

Join DG@Putra

- Read our rules and policies
- This project uses BOINC. If you're already running BOINC, select Attach to Project. If not, download BOINC.
- When prompted, enter
  http://boinc.biruni.upm.my/putra/
- If you're running a command-line or pre-S.0 version of BOINC, create an account first.
- If you have any problems, get help here.

News

DG@Putra is here!
February 23, 2012, 17:42 MYT
We are happy to announce that we have just launch DG@Putra, a Desktop Grid implementation in UPM. The workunits from the application will be available soon.

News is available as an RSS feed.

Returning participants

- Your account - view stats, modify preferences
- Teams - create or join a team
What’s Next?

- Setup application repository as the “honey pot” to attract more people to use and implement Desktop Grid.
- Setup DG Job Submitter on existing Grid Portal
- To study in detail from University of Westminster about their green desktop grid implementation.
- Independent, Coordinated and Collaborative effort to achieve a common goal (i.e. National Distributed Computing Infrastructure)
National DCI Roadmap

Scientific Gateway

National Distributed Computing Infrastructure

- Service Grid e.g. gLite
- Desktop Grid e.g. BOINC
- Cloud
- Identity Management

BRIDGE
Thank You
References

- DG@Putra – http://boinc.biruni.upm.my/putra