Legion: An extensible lightweight web framework for easy BOINC task submission, monitoring and result retrieval using web services

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Outline

- Who are we?
- Legion Framework
- Architecture
- Applications
- Conclusions and future work
Who are we?
Who are we?

- Our Office manages all the computer commons.
- University-wide BOINC Campus Grid working with: 500 PCs.
- Main users: Researchers working on High Energy Physics.
Legion Framework
Legion Framework

- Set of tools that ease the access to BOINC.
- Portal where researchers actually send the parameter for jobs (bag-of-Tasks) via Web.
- Remote task submission via command line.
- We have a proposal for centralizing BOINC Server Management.
Architecture
- Service Oriented Architecture.
- Allows multiple interfaces (Web, CLI) / multiple back-ends (BOINC, Other DGs).
Legion Web Interface

- Portal where researchers actually send the parameter for their jobs (bag-of-Tasks) via Web.
- Projects are created through a Wizard.
- Task submission forms are designed graphically.
- User management features.
- Allows collaboration Eg. Task sharing between project users.
Legion Web Services I

- Inserted on top of a Grid Management System.
- Allows bag-of-Tasks to be created on the system and to monitor those.
- It exposes SOAP web services.
- Enables Remote Job Submission and monitoring.
Legion Web Services II

- Legion Web Services is an specification and should be built a custom layer for BOINC.
  - Task Creation.
  - Task Info.
  - Task Cancellation.
  - Task List.
  - User Validation.
Legion Web Services: BOINC
Applications
Remote job submission - Web

- Project = Group of users + Application.
- Collaborative environment.
- Administrative features.
Remote job submission-Web II
Remote job submission - Web III
Remote job submission - CLI I

- Submitting and monitoring tasks from command line.

  **Java:**
  - java -jar LWS-Client.jar user email password http://server:port/?wsdl

  **PHP:**
  - php Main.php user email password http://server:port/?wsdl
Remote job submission - CLI II

Choose an option:
(1) : User validate
(2) : List
(3) : Create
(4) : Information
(9) : Exit

> 4

******************************MENU Information******************************

Task ID : 1608763313

Task ID : 1608763313
Description : Task completed
Computers : 0
Task N : 2
Task Finish : 2
Cpu time (sec) : 0.0
Elapsed time (sec) : 4.033224
Real time (sec) : 69.03802
Link Result : /65c6b29ed98db16804753a32868/test.zip
Centralized BOINC Server Supervision

- Architecture proposal.
Conclusions and future work
Future work

- Deploying Legion Framework in Latin America.
- Integration with other systems.
Legion Framework Benefits

- Modular Architecture / Code.
- Open source - Licensed under the GPL.
- Online documentation on our wiki.
Thank you.

More info:

http://legion.pucp.edu.pe/wiki

or drop us an email:

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