LASER INTERFEROMETER GRAVITATIONAL WAVE OBSERVATORY
- **LIGO SCIENTIFIC COLLABORATION** -

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Report at OSG Board Meeting	
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LIGO Scientific Collaboration and OSG

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1 Introduction

The LIGO-PIF is to support, enhance and deploy the software and grid-services needed to achieve LIGOs scientic goal. The services are provided to the benet of all scientists of the LIGO Scientific Collaboration (LSC) as a facility for gravitational-wave data analysis–the LIGO Data Grid (LDG). The project co-investigators are Stuart Anderson, Patrick Brady (PI), Jolien Creighton Sam Finn, and Erik Katsavounidis representing the LSC.

The PIF-OSG relationship is defined in a technical document (LIGO-M-060075-00-Z) authored by Brady, Lazzarini, Livny and Pordes. The general idea of the relationship is summarized in: "The LSC will also contribute to enhance the OSG's ability to serve and engage the broader scientific community. During the 5-year program of work of the PIF and OSG requests, the LSC will work diligently with the OSG to leverage the OSG infrastructure to the greatest extent possible; the OSG will work diligently to provide infrastructure which addresses the needs of the LSC. Integration of the LDG into the OSG constitutes part of the long term strategic cyber infrastructure plan of the LSC."

Important note: LIGO is current involved in a two year data run (S5). The success of LIGOs long-term observing campaign is predicated on continuing timely analysis of the observational data. To achieve this, LIGO has successfully deployed the production LDG. While integration into the OSG is part of the long-term strategic plan for the LSC, that integration process cannot interfere with production scientific computing on the LDG at this time. For this reason, near term activities related directly to the integration process will be limited in scope and primarily of an exploratory nature until the end of the current science run. (We anticipate S5 to end in Fall 2007.)

2 Specific OSG commitments to LIGO-PIF

Commitment #1: Certificate Authority. In the OSG proposal 0.5 FTE of effort is identified at LBNL to work with the PIF and ensure the OSG stakeholder requirements and needed capabilities are met. Through this and other identified security effort in the OSG Facility we would support LIGO and also work with the identified the LSC PIF 0.25 FTE to ensure that the collaboration needs are met. A summary of the current status:

- Warren Anderson (LIGO-PIF, UWM) is the technical contact for the LSC. Doug Olsen (OSG, LBL) is the technical contact for the OSG.
- Response has been very good on issues requiring immediate coordination on both sides.
- Meeting took place in Seattle meeting on Aug. 20 to talk about status, needs and possible resolutions on longer term issues. A prioritized list of about 10 items has been

developed. Good start, expect to report closure on many of these next time the board meets.

Commitment #2: VO management services. One of the FTEs in the extensions programs is co-located with the LIGO group at Caltech. This FTE can be included as part of the Authorization project to ensure timely delivery to LIGOs requirements. OSG operations would also work with the identified LIGO 0.25 FTE to ensure good communication and support the appropriate LIGO control and security.

- Murali Ramsunder (LIGO-PIF, PSU) is technical contact for the LSC. Gabriele Garzoglio (OSG, ??) is technical contact for OSG.
- Issues related to VO management services were discussed at the Seattle meeting in August. Some LIGO specific issues were identified. No work commitments on either side at this time.
- Ongoing work to understand immediate issues. Integration into production LDG is under consideration at the present time. LDG is contributing resources to OSG and will continue to do so at a best effort level until the end of S5.

Commitment #3: VDT. LIGO relies heavily on VDT to manage the software bundles needed by users and administrators. There is a LIGO-specific need, however, to support our custom LDG Client on a broader class of platforms. LIGO uses a small subset of the standard VDT, so we do not fully integrate the entire VDT into our tools. Strengthen the already close working relationship between LIGO VO staff and the VDT team.

- Stuart Anderson (LIGO-PIF, CIT) is technical contact for the LSC. Alain Roy (OSG, Madison) is technical contact for OSG.
- Response has been very good on issues requiring immediate coordination on both sides.
- A prioritized list of issues was drawn up before the OSG-PIF agreement. Many of the issues have been addressed, new ones arise and are being addressed by the VDT and Condor teams. There is a weekly telecon at which details are discussed.
- A follow-up meeting is being planned to discuss further aspects of collaboration.

3 Other OSG-LIGO work

Kent Blackburn (OSG, Caltech) is Principal Investigator. The SOW is under negotiation between Caltech and the OSG management. Anticipated deliverables are: i) Test new services and versions of VDT as they become available to the Integration Test Bed. ii) Integrate and deploy extended services for workflow and authorization services, initially for LIGO applications and then for other VOs as agreed to by the Applications Coordinators.

The latter deliverable relates to workflow description, implementation and execution on OSG resources. As such, the OSG-Caltech working group will participate in LIGO software and computing coordination meetings to insure that the work is relevant to future directions for science.