Open Science Grid in the U.S.

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Projects and Funding in the U.S.

- Funding for Physics related Grid Projects, Middleware, LHC Computing, Networking comes from two different funding agencies in the U.S. – DOE and NSF
- Both agencies have provided significant funding to lab's, universities, experiment-led projects and to innovative groups of researchers. They have funded
  - GriPhyN (NSF) – an early Grid project - Physics + CS
  - PPDG (DOE) – also an early Grid project – Physics + CS
  - iVDGL (NSF) – to deploy a "lab" for Grid work – spawned VDT, iGOC
  - Condor and Globus and other middleware
  - SRM
  - Ultralight (NSF) and UltraScienceNet(DOE) and LamdaStation(DOE)
  - U.S. CMS and U.S. ATLAS Software and Computing efforts, which also supply funding to use/enhance/work together on some of the above
  - Experiments such as CDF, D0, Babar, SDSS, Ligo, STAR
  - TeraGrid(NSF)
  - LHCnet transatlantic link (DOE)
  - DOE Science Grid – Certificate authority
  - And much much more…..

Federation of Efforts

- DOE + NSF
- Physics + Computer Science
- Labs + Universities
- US + International partners
  - We are accustomed to federating our efforts to achieve science goals
  - We do not have one managed funded effort – we have many, with different focuses and goals, but a few key shared goals
  - "Together we can build an production Grid Infrastructure for Science and lead the way with other sciences based on our huge global collaborations, vast data sets and enormous computing needs"

Grid3 – a huge success

- Grid3 started out as a demonstration for SuperComputing2003 of a multi-site working Grid
- It ended up a sustained simple Grid infrastructure that could be (and was) used for real work
  - http://www.ivdgl.org/grid3
- Built with leadership from iVDGL and effort from many of the other Grid projects and experiment efforts
- The next step was clearly to create an organization to help us build a sustained Grid infrastructure in the U.S.
  - To provide computing for LHC
  - To support other experiments and other sciences than physics
  - To provide opportunities for CS research and education

Open Science Grid Consortium

- The Open Science Grid (OSG) Consortium was formed in 2004 by teams from U.S. universities and national laboratories in order to build and support a production quality peta-scale Grid infrastructure for large scale science. The Open Science Grid will ensure that the U.S. plays a leading role in defining and operating the global grid infrastructure needed for large-scale collaborative and international scientific research
- The Open Science Grid Consortium is an organization, not a managed project. It sponsors collaborative activities and technical groups to achieve the shared goals of the members
  - You will hear much more about how this works in later talks
- http://www.opensciencegrid.org

Grid3 -> OSG

- Great deal of work has been done toward a sustainable production Grid infrastructure
- We trust (hope/pray) that success will bring not only a working system, but sustained funding to support middleware and operations and to take us to the next level
- There are national grids, experiment-owned grids, campus grids, intra-institution grids, LHC Computing Grid and more
  - They can all work together and complement each other
  - Already we have demonstrated much success in interoperability between OSG and LCG/EGEE