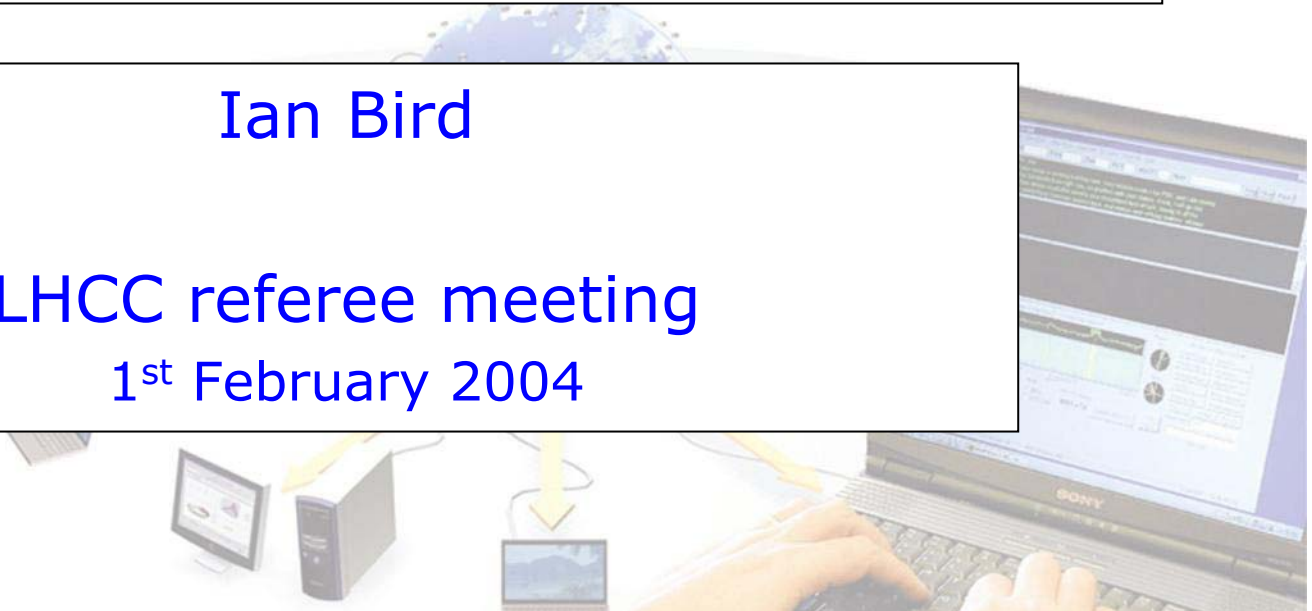# LHC Grid Interoperability and Compatibility

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LHCC referee meeting

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Introduction: grid flavours

- **LCG-2 vs Grid3**
  - Both use same VDT version
    - Globus 2.4.x
    - LCG-2 has components for WLM, IS, R-GMA, etc
  - Both use ~same information
    - Grid3
    - Some each
    - Both

- **Catalogues**
  - LCG-2: catalogue (for POOL)
  - Grid3 and NorduGrid: Globus RLS

- **LCG-2 vs NorduGrid**
  - NorduGrid uses modified version of Globus 2.x
    - Modified gatekeeper – incompatible with Globus
  - Very different information
    - use MDS

- **Work done:**
  - With Grid3/OSG – strong contacts, many points of collaboration, etc.
  - With NorduGrid – very little so far

to GridCanada and WestGrid (Globus based) in production

Common areas (with Grid3/OSG)

- Interoperation
  - Align Information Systems
  - Run jobs between LCG-2 and Grid3/NorduGrid
  - Storage interfaces – SRM
  - Reliable file transfer
    - Service challenges

- Infrastructure
  - Security
    - Security policy – JSPG
    - Operational security
      - Both are explicitly common activities across all sites
  - Monitoring
    - Job monitoring
    - Grid monitoring
    - Accounting
  - Grid Operations
    - Common operations policies
    - Problem tracking

Interoperation

- ## LCG-2 jobs on Grid3
  - G3 site runs LCG-developed generic info provider – fills their site GIIS with missing info – GLUE schema
  - From LCG-2 BDII can see G3 sites
  - Running a job on grid3 site needed:
    - G3 installs full set of LCG CAs
    - Added users into VOMS
    - WN installation (very lightweight now) installs on the fly

- ## Grid3 jobs on LCG-2
  - Added Grid3 VO to our configuration
  - They point directly to the site (do not use IS for job submission)

- ## Job submission LCG-2 ↔ Grid3 has been demonstrated

- ## NorduGrid – can run generic info provider in their GIIS
  - But requires work to use the NG gatekeeper

Storage and file transfer

- ## Storage interfaces

  - LCG-2, gLite, Open Science Grid all agree on SRM as basic interface to storage

  - SRM collaboration for >2 years, group in GGF

  - SRM interoperability has been demonstrated

  - LHCb use SRM in their stripping phase

- ## Reliable file transfer

  - Work ongoing with Tier 1's (inc. FNAL, BNL, Triumf) in service challenges.

  - Agree that interface is SRM and srmcopy or gridftp as transfer protocol

    - Reliable transfer software will run at all sites – already in place as part of service challenges

Operations

- **Several points where collaboration will happen**
  - Started from LCG and OSG operations workshops
    - Operational security/incident response
    - Common site charter/service definitions possible?
    - Collaboration on operations centres (CIC-on-duty) ?
- **Operations monitoring:**
  - Common schema for problem description/views – allow tools to understand both?
  - Common metrics for performance and reliability
  - Common site and application validation suites (for LHC apps)
- **Accounting**
  - Grid3 and LCG-2 use GGF schema
  - Agree to publish into common tool (NG should too)
- **Job monitoring**
  - LCG-2 Logging and bookkeeping – well defined set of states
  - Agree common set will allow common tools to view job states in any grid
  - Need good high level (web) tools to display – user could track jobs easily across grids

Summary

- ## Several points of collaboration possible
  - ### This work (operations, security) will likely continue
- ## Real interoperability is feasible
  - ### Some things (SRM) are becoming "standard"
  - ### Workshop in Feb on common WLM interfaces
- ## But,
  - ### To make it happen, we need:
    - LCG – experiments in particular – have to ensure that interoperation and/or compatibility appear in the OSG/NorduGrid project planning and resources
  - ### How much work is really useful?
    - gLite? – does not use current info system – how does interoperability happen?
    - What are OSG and NorduGrid plans?
    - What do the experiments want in terms of interoperation?