

# Initial Plans for CERN and EDS Collaboration in Grid Monitoring

CERN openlab II technical review  
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- EDS joined CERN openlab as a contributor
  
- Motivation
  - CERN
    - must deliver a reliable worldwide WLCG production Grid infrastructure
    - wants to improve the reliability of the Grid
  - EDS
    - is a global IT Services company
    - manage global IT infrastructures for large companies

- Purpose of joint project: *“Research and Development in the field of Monitoring, Management, and Operations of Grid services”*
- 2 FTE over one year (1 EDS, 1 fellow)
- Initial focus: *Monitoring*
- CERN openlab project involving
  - Grid Deployment (GD) group
  - Fabric Infrastructure and Operations (FIO) group
  - Physics Services Support (PSS) group

## ■ *You can't manage what you don't measure...*

### appropriate metrics

- directly relevant to user experience
- clearly defined and understood

### accuracy and credibility

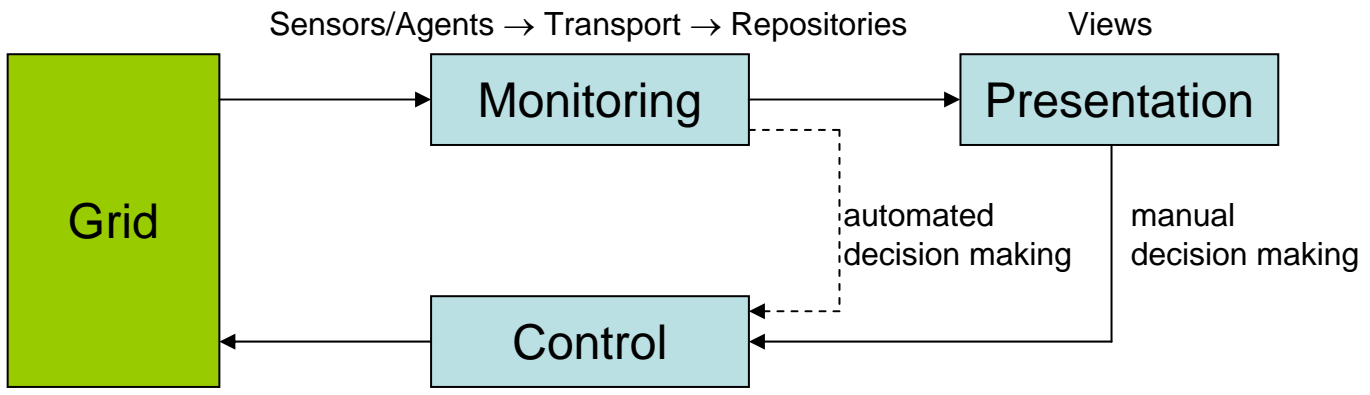
### measurement instrumentation

- active, passive, collection intervals, alarms

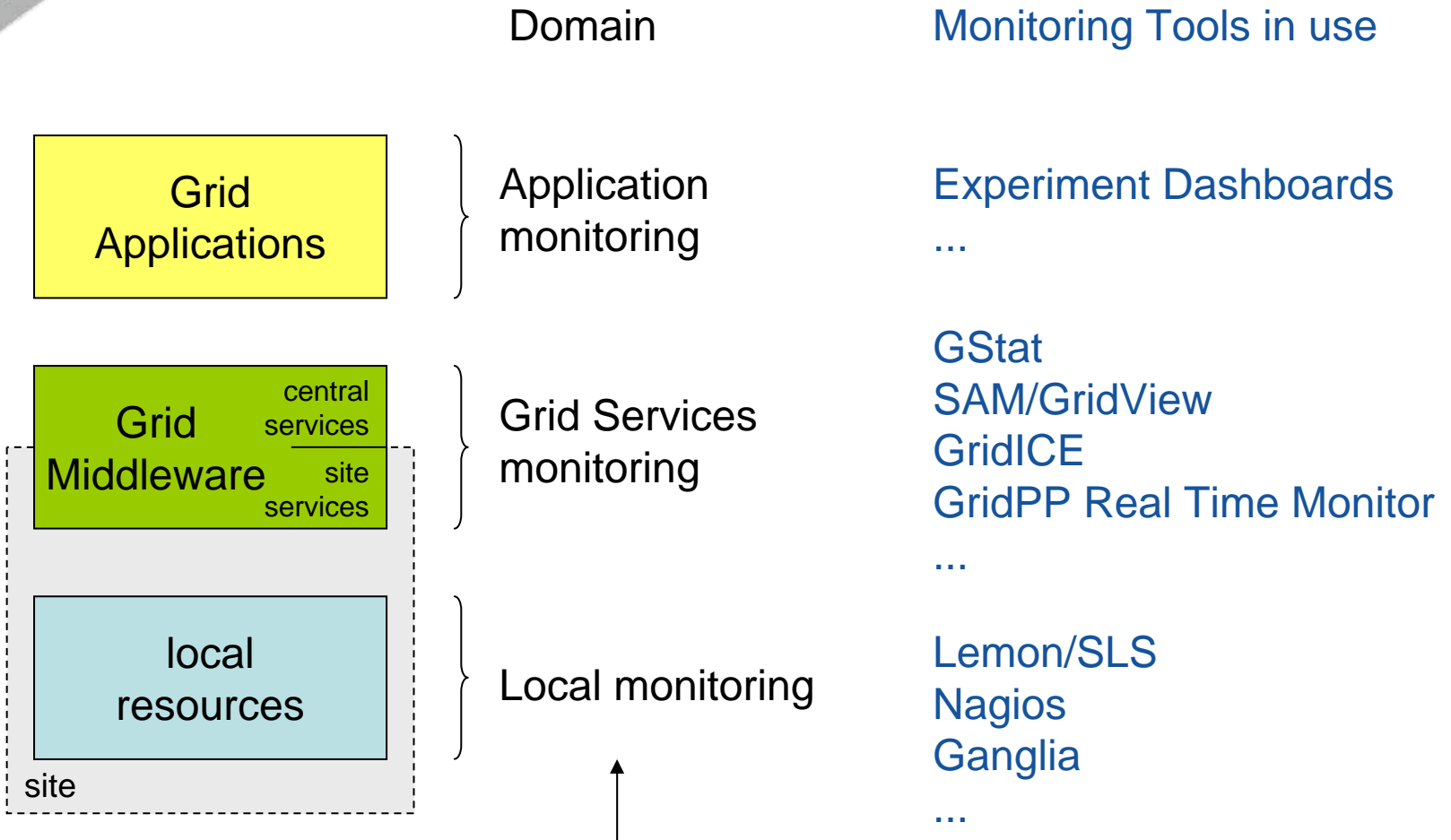
### data collection points

- system element ↔ service

### real-time ↔ historical



# WLCG Grid Monitoring Landscape



3 WLCG Monitoring Working Groups

- Multiple existing grid monitoring tools
  - have grown independently
  - have overlapping functionalities
  - some tools are being integrated with each other
  
- Problems
  - multiple implementations of sensors, transport protocols, repositories → redundancies, multiple architectures
  - credibility of data
  - high complexity
  - “real” state of the grid not known
  
- Needs
  - consolidated standardized monitoring infrastructure (architecture)
  - credible monitoring data with metrics directly relevant to stakeholder experience
  - better views to better understand the state of the grid
  - ability to quickly correlate monitored faults to “root causes” of problems and known corrective actions (Use Cases)

# Initial Work Plan – First Steps

- Analyze / understand current reality
  - analyze existing grid monitoring tools and underlying infrastructures
    - SAM / GridView
    - GridICE / Lemon / Nagios
    - Experiment Dashboard
    - GStat
  - identify strengths and weaknesses
  - create architectural views on the current reality
- Work together with *WLCG Monitoring Working Groups*
  - investigate industry standards
- Propose improvement options
  - Short-term quick fixes
  - Longer-term approach
- Technical Workshop (in one month)
  - present findings, define next steps



- **WLCG Monitoring Working Groups**  
TWiki: <https://twiki.cern.ch/twiki/bin/view/LCG/LCGMonitoringWorkingGroups>
- **SAM/GridView Monitoring**  
Portal: [http://gridview.cern.ch/GRIDVIEW/job\\_index.php](http://gridview.cern.ch/GRIDVIEW/job_index.php)  
TWiki: <https://twiki.cern.ch/twiki/bin/view/LCG/GridView>
- **SAM (Service Availability Monitor)**  
Test Page: <https://lcg-sam.cern.ch:8443/sam/sam.py>  
TWiki: <https://twiki.cern.ch/twiki/bin/view/LCG/SamCern>
- **GridICE Monitoring**  
Portal: <http://gridice2.cnaf.infn.it:50080/gridice/>  
Documentation: <http://gridice.forge.cnaf.infn.it/>
- **Experiment Dashboard**  
Portal: <http://dashboard.cern.ch/>  
TWiki: <https://twiki.cern.ch/twiki/bin/view/CMS/Dashboard>
- **GridPP Real Time Monitor**  
Homepage: <http://gridportal.hep.ph.ic.ac.uk/rtm/> (2D map and 3D globe visualizations)
- **GStat**  
Portal: <http://goc.grid.sinica.edu.tw/gstat/>  
TWiki: <http://goc.grid.sinica.edu.tw/gocwiki/GstatDocumentation>
- **Lemon**  
Portal (CERN Compute Center): <http://cern.ch/lemon-status/>  
Documentation: <http://cern.ch/lemon/>
- **Nagios**  
Homepage: <http://nagios.org>