Supporting on Demand, Policy Based Monte Carlo Production, Leveraging Clarens, and RunJob

(1) User accesses the browser client to browse through *available workflows*. Every workflow generates a *customized form* based on the parameters it exposes. Users *upload* their parameter selections and associated (voms) proxy to a *session sandbox* that is automatically created at the Tier-2 site.

(2) Once these actions are successful, the submission is *verified. A ShREEK workflow* in the sandbox is instantiated, i.e. a prototype job is configured, and a DAG of jobs is created. This DAG is then *submitted* if verification is successful.

(3) As jobs start *execution* at an OSG site, users have read-only access to files and processes in any of their *sandboxes* through *JobMon*. As last step in the ShREEK workflow, output data is saved in the OSG sites local storage element (SE), and exit messages are registered. As last step in the overall DAG output, data is collected from the OSG execution sites and stored at the user's Tier-2 center for subsequent analysis.

Workflow administrators can determine which individual or groups they allow access to workflows and with what frequency

(0) Access Control

(1) User request interface @ user laptop

(3) Monte Carlo processing @ OSG site

CE: GRAM

SE: SRM

(c) Read underlying event data

Storage Cluster@Tier-2 site

Batch slot on compute node@OSG site

Setup

CMKIN MC Physics generator — **OSCAR** CMS detector Simulation — **ORCA** CMS data reconstruction — **Store data** Output Sandbox — **Cleanup**

(a) starts

ShREEK workflow control

JobMon server

(b)registers

(d)stops

(d)registers

JobMon Interactive read only access to sandbox

ExitMon Reliable registration of application exist msgs.

Discovery Service (Registry) Service   Software

Clarens Web Service Container

(1)Desktop **Me** → (2)Tier-2 **My friends** → (3) OSG site **Anonymous grid**

(2) Workflow creation & management @ USCMS Tier-2 center

More Information:
MCPS frontend: http://www.its.caltech.edu/~fvlingen/MCPS/html/index.html
Clarens: http://clarens.sourceforge.net/
MCPS backend: http://www.uscms.org/SoftwareComputing/Grid/MCPS/
JobMon: http://sourceforge.net/projects/jobmon

Service Interface

ShowWorkflows
Upload
Verify
Execute

Workflow Parameter specifications
Workflow Specifications
Execution information

User Sandboxes

clarens_file_root
  shell
    32
      32ref43er54frf
    45
      45gtrfedw3e43
    w3
      w3ddf45rfer33

(b) Submit workflow

Storage Cluster@Tier-2 site

MCPS Creates Job   Condor-G Executes Job

(c) Manage submission & retrieve output data.

(a) Instantiates a workflow in user sandbox for execution

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