The SuperB simulation production system has been successfully used in intense production cycles of both Full- and Fast simulation. Several tens of billion simulated events have been produced. The simulation production system has been adopted to provide the minimum set of services and applications upon which the SuperB distributed simulation production system has been built. Authentication and authorization is provided by VOMS service; LIC is the file catalog, WMS is used for brokering purpose and for Grid flavor interoperability features, transfers are done via Lcg-Utils, GANGA is the submitting interface.

Distributed Architecture & Infrastructure

The UHC Computing Grid (UCG) architecture was adopted to provide the minimum set of services and applications upon which the SuperB distributed simulation production system has been built. The structure of services and job workflow follow a semi-centralized design: a production cycle consists of several requests (defined by a specific set of job parameters values and events), which in turn are divided in several submissions, each consisting of several jobs. A configuration interface for requests definition, per production cycle and each consisting of several jobs. System Design

The simulation production system heavily relies on a bookkeeping database, storing both application-specific and infrastructure metadata, which is tightly coupled with a Web-based user-interface (WebUI). The first makes available to the users information on the execution status of jobs and their specific meaning and parameters, and contributes in orchestrating the submission mechanism. The latter provides job submission management for Full simulation and Fast Simulation, bookkeeping database interactions and basic monitoring functionalities.

The bookkeeping database is implemented with PostgreSQL rDBMS in a centralized way, the WebUI in PHP and (Query). The database interactions with the submission portal and the job in execution on the WNs are managed by a direct interface to PostgreSQL or a RESTful interface (with X.509 proxy-certificate cipher-encryption authz), respectively.

Web Portal

The WebUI provides separate management for Fast simulation and Full simulation productions. Both sections are divided in configuration, submission and a monitor subsections. Their content is dynamically generated from the bookkeeping database schema and state in order to include the simulation-specific fields. A production cycle consists of several requests defined by a specific set of job parameters values and events, which in turn are divided in several submissions, each consisting of several jobs. A configuration interface for requests definition, per production cycle and simulation type, is provided.

Job Workflow

The structure of services and job workflow follow a semi-centralized design: job management service, bookkeeping database and default storage repository are hosted in a central site. Jobs executed into remote sites update the bookkeeping database with status, wct update, output registr and log tr. Bookkeeping metadata are integrated with Grid Logging & Bookkeeping service (LB) information provided by the infrastructure. In addition, the submission mechanism takes into account sites availability data repository or to a predefined site, discriminating on execution metadata. The system requires a proper configuration of the remote Grid sites. Multi-site submissions based on requests and line grain parametric submission interfaces complete the set of available services permitting a shift based scheduled session and a debugging specific console, respectively.