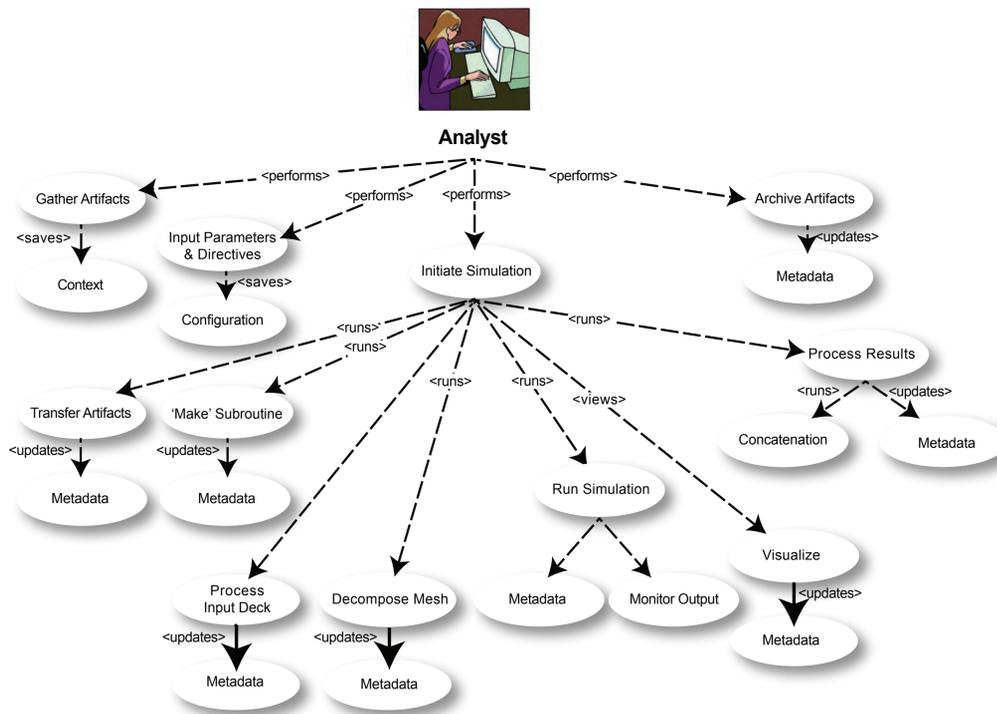




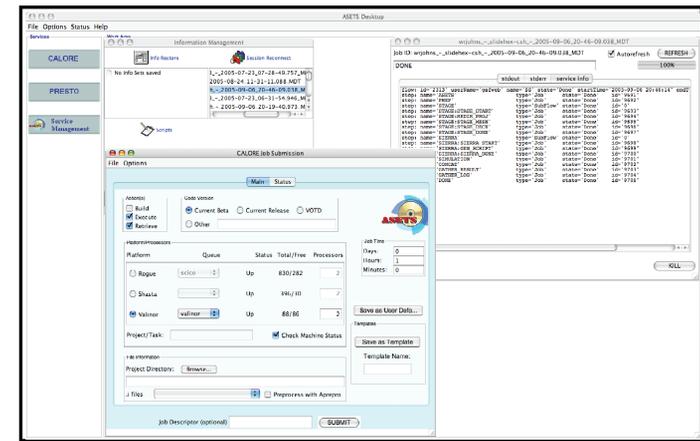
# Analyst Simulation Execution and Tasking System (ASETS)

ASETS is a distributed computing fabric and application framework designed to assist simulation scientists with the running of simulations in a diverse computational environment. The primary requirement for ASETS is to reduce the amount of time taken by the analyst to perform simulation activities.

## Process Model



## Analyst GUI



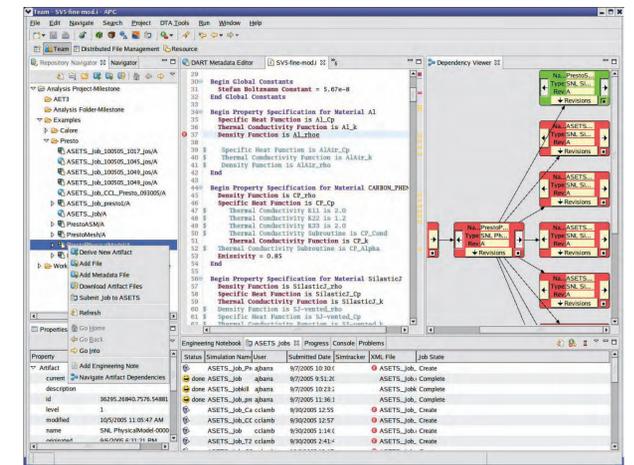
The goal of the ASETS graphical interface is to provide a representation of the analyst's vision of running a simulation rather than a portal to the computational environment. Using agile methods for rapid development, the GUI is implemented and a process manager flow constructed to initiate and manage the running of an ASETS use-case model. In addition, resource status allows the analyst to make educated choices on where to run the simulation.

ASETS provides the capability to manage use-case models. Here meshed-based simulations follow a pattern that can be reused by different simulation codes. This model supports both the CALORE thermal code and PRESTO structural dynamics code. The analyst may configure ASETS to perform the individual model elements in support of user-defined sub-routines, varying input decks, mesh decomposition, and results visualization/concatenation. Metadata is managed in support of the DTA process.

## DTA

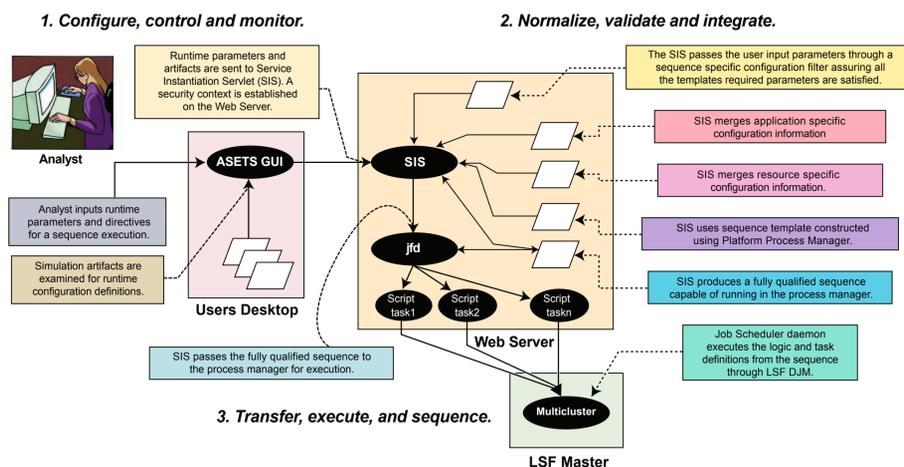
Integrated design through analysis based upon an application called the Analysis Process Coordinator (APC) which serves as a virtual dashboard or portal to team-based analysis projects. The goals of the APC are to:

- Capture analysis -derived product knowledge.
- Increase analyst productivity by providing an integrated DTA environment.
- Improve analysis process management by managing analysis artifacts state and providing support for a formal review-an-approval process.



Lightweight MPI profiling with mpiP and MpiPview and approval process.

## Middleware



Web services enable the analyst to manipulate and process simulation artifacts in the distributed environment. Resource and application "normalization" eliminates the need for the analyst to maintain login configurations on each resource. Integration with the sequence processor automates tasks on behalf of the analyst including security authentication and credential management for long lived simulation runs.

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Visualize the Difference

