# Presentation of the Use Case

## Use Case Name

Schedule Resources Flexibly

## Version

1.0

## Goal

To be able to describe jobs in such a way that they could be scheduled on any set of resources that could meet the job’s requirements.

## Summary

 The Genesis IIteam at UVa has found a strong need to be able to schedule grid jobs based off of things like Architecture and Operating system. We have also found classes of jobs that do not need to be unnecessarily constrained to one particular set of resources. Relying solely on the tools provided in JSDL 1.0 can potentially eliminate sets of valid resources. To that end, we would like the ability to relay the information necessary to indicate that jobs can run on any of a set of valid resources.

# Detailed Description of the Use Case

## System

This use case relates mostly to jobs submitted to metaschedulers but could also be applicable to jobs submitted to a BES backed by a set of heterogeneous resources (such as a pbs backed BES).

## Actors

A user requesting that their job(s) run on any of a set of machine classes.

## Preconditions

Metascheduler (or BES) must have up-to-date information about the resources it can schedule on.

## Triggers

A user submits a job to that can run on any of a set of machine classes.

## Basic course of events

1) A user submits a job(s)

2) A set of resources that could potentially match the job(s) requirements is determined

3) The job(s) are scheduled and sent to appropriate resources

## Post Conditions

NA

# Additional Information for the Use Case

## Alternative paths or Extensions

NA

## Business rules

NA

## Notes

 Some examples of uses this use case seeks to address are:

* Attempting to run a Java program on any machine type that supports Mac OS X or Linux
* Attempting to run an R program for which the architecture is 32-bit and either Windows or Mac OS X
* Attempting to run an arbitrary executable from a set of pre-compiled binaries that will be staged in where the run is restricted to 32-bit windows machines with 2 G of available ram, or 64-bit windows machines with 4 G of ram.

## Author and date

Mark Morgan

Michael Saravo

03/28/11