# Overview

OpenStack (Essex) does not support idempotent RunInstances() calls, and although it doesn't complain about client tokens, it also does not remember them. This implies two problems:

Because we can not safely call RunInstances() more than once, we need to check before doing so that we don't already have an instance running.

Because we can not use the client token for our “two-phase commit”, we need some other identifier to perform the above check, and other checks, especially during recovery (in particular, for GM\_SEEK\_INSTANCE\_ID). Luckily, because of GT #3863, there should be only one place in the code base where we search the service's list of our active instances for identifiers (as opposed to looking things up by instance ID). (There's an exception in the code for ec2\_vm\_status(), although that doesn't count because it's unnecessary.)

# Solution

The obvious solution is to return to the previous solution of abusing the SSH keypair name to use as our identifier. This will work for our motivating user, although it has the obvious drawback of (a) using a lot of SSH keypairs and (b) not allowing users to use their own. These drawbacks imply that it would be better to make the old code path specific to OpenStack. One option is a job attribute; the other would be to extend the “protocol” schema already in use for “x509” and “euca3”, although those are handled by the EC2 GAHP rather than the grid manager. This plan has the benefit that we know it will work with OpenStack. Additional logic will be necessary in condor\_submit to prevent OpenStack jobs from specifying their own SSH keypair ID.

Another option would be to find some other field in DescribeInstances() to abuse; however, OpenStack may not support that field, either (assuming we chose the SSH keypair ID because nothing else was available at the time).

# Work Plan

FIXME.

Verify that the patches for GT #3863 work when used with SSH keypair IDs.