Note

Subject: **SITE VALIDATION PROCESS PROPOSAL**

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Distribution:

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CONTEXT:

The EDG testbed's main goal is to provide a grid infrastructure with enough computing resources to allow applications to test in suitable environment. To this end, it is necessary to define a formal acceptance process to let new sites to join the EDG applications testbed. This document proposes an acceptance process for new sites.

1. INTRODUCTION

Applications need a realistic test environment. EDG wants to provide a grid environment with as many resources as possible to them and make it as easy as possible for new sites to join the testbed.

37 sites have expressed interest in joining the testbed, although not all of them will join at the same time. 5 core sites compose the applications testbed, but this number should rapidly increase as those 37 new sites start to join. This implies that EDG must have a formal and well-defined acceptance process for new sites. The aim of this document is to propose such an acceptance process .

The first section describes in a schematic way the acceptance process ; local tests that are mandatory to be passed on a new site that wants to join the testbed and tests that will be executed in conjunction with other EDG testbed resources.

The second section gives a list of modifications to be implement in EDG software in order to make the proposed acceptance process feasible.

Please note that this process applies only to sites willing to provide resources to the grid, i.e. sites installing components like Computing Elements/ Working Nodes, Storage Elements. The installation of User Interface components is not subject to this process. Please note also that the process described here is for initial acceptance ; sites should be regularly certified and not just a one time certification at the start, but acceptance process may differ. This note concerns only initial acceptance process.

2. ACCEPTANCE PROCESS OVERVIEW

A new site willing to join the testbed, must perform some site-level tests and some testbed-level tests. Step 1 and 2 of the process described below compose the site-level tests and step 3 to 5 are the testbed-level tests.

After having verifed that the site is covered by an existing CA, the acceptance process proposed here can be split in the following steps :

- **Step 1 :** install/configure the EDG components and perform site-level tests
- **Step 2:** for CE, run acceptance test suite using an RB of the applications testbed without adding it to the Information index
- **Step 3:** add RunTimeEnvironment flag EDG-TEST to the candidate site information system and request the registration into the applications testbed II. From this step on, the candidate site can be used by an RB, but it is tagged as "Test".
- **Step 4:** run acceptance test suite by ITeam/Test group and iterate.
- **Step 5:** when certification is over, change flag from EDG-TEST to EDG-CERTIFIED
- **Step 6:** implement procedures for operation of a testbed site
- **Step 7:** install, configure and test application software.

The general main ideas of this process are :

- To minimise efforts being taken in charge by both local administrator of the new site and testbed administrators.
- To proceed in a logical way such that each step skipped should be a source of error for the next steps.
- To make sure the operation of the applications testbed users and sites will not be disturbed by new sites joining.

Each of these steps are described more in-depth below in their respective section whether the steps are local to the new site or integrated in the testbed. Step 1 is a site-level test and is described in the corresponding section. Other steps are testbed level tests and are described in the corresponding level.

SITE-LEVEL TESTS

In a nutshell, the idea is to let the candidate site test its installation before user jobs will scheduled to this site. Many of those tests anyway can only be done by the administrator of the new site because of required privileged access.

Each EDG component can be installed and tested separately. TSTG site validation test suite should cover a part of this activity, namely the correct behaviour of the installation of EDG software and some basic tests on configuration files and variable, i.e. basic check of environment variable values.

Step 1 at the end of this step, the basic configuration of the site is verified. From the general acceptance process overview can be split in the following tasks :

- Install EDG components (CE, WN, SE, UI, Etc.) The recommended way to install EDG components is by using LCFG: this will help new site administrators with the configuration of the site. EDG will provide tests suites for each component to test the correct installation of EDG toolkit on each component (i.e. installation of all the packages required for each components and

so on). Please note that the whole acceptance process does not force new site administrator to use LCFG for this step.

- Identify responsible persons. Each site must provide a clearly identified person/team responsible for installation, configuration, operation and user support. Please note that it is not mandatory that all these tasks be performed by the same person/team. This information must be advertised through the site's information system.

- Install all the necessary security components for each host including the host certificate.

- Check that cronjobs like automatic update of grid-mapfiles and certificate revocation lists are available on this new site

- Configure EDG components. Some tests can be done automatically to check this step. EDG will provide tools in order to automate this step to the maximum (i.e. check acces rights on some conf files, their existence, parse those files in order to check if mandatory variables are set, and so on) but this test will certainly not be feasible automatically.

- Perform tests to verify the correct configuration of each host. These tests include the verification of security infrastructure, Globus layer, file transfers, network and firewalls, certificate revocation lists, certificate, etc.

- Perform local EDG tests. These test should be performed by a test suite that EDG will provide and that should check the basic behaviour of each component installed.

- Finally, check the info published by the site is correct.

TESTBED-LEVEL TESTS

This section describes the necessary steps for testing the correct integration between this new site and the rest of the testbed.

Step 2: for CE, run acceptance test using the RB of the applications testbed.

This step intends to check that RB can access the new site's CE, not specifically to test CE functionality behaviour. This means that only a job should be run, and not a complete test suite. The test suite provided by TSTG should be used in this step.The new CE has not to be registered into the II, as it is feasible to force the scheduling of the test jobs to the candidate site by using option -- resource of command dg-job-submit.

Run a dg-job-submit means that the user has a certificate and an account on a correctly configured UI. The new site's administrator must contact Iteam for performing this step, in order that RB responsible could check the correct RB behaviour during this step.

Please note that this step would be modified in the with future releases (it is not sure if the Information Index will continue to exist).

Step 3: add RunTimeEnvironment flag EDG-TEST to the candidate site information system and request the registration into the applications testbed II.

Please note that even if your site is registered on the II, you as a site administrator have several means to make sure that user's jobs are not scheduled for execution on a site : Grid-mapfile (by putting only the site tester's certificates), RunTimeEnvironment definition (by changing the attribute ACTIVE false), etc. The administrator of the new site should use these techniques to ensure the site is not accessible to normal jobs until the site has been certified to avoid background problems during all the acceptance process.

From this step on, the candidate site can be used by the RB, but it is tagged as "Test".

Step 4: run acceptance test suite by ITeam/Test group and iterate. This test suite will contain basic functionality tests included in previous referenced test suite plus extra functionality tests that were not feasible by using only the new sites components (e.g. if the new sites contains SE, replication tests). Please note that these new tests may require some components of the new site be registered on another site's configuration as is the case for the Storage Element(e.g. : unless you install two SEs on your site (which is possible) you need to be registered on another site's SE to perform replication tests).

Step 5: when certification is over, change flag from EDG-TEST to EDG-CERTIFIED. This final step make this site a part of the testbed. New site administrator should take care to remove all the means he used to avoid users' job on its site.

Step 6: implement procedures for operation of a testbed site (automatic update of grid-mapfiles and certificate revocation lists, …)

Step 7: Install applications components. Each application that new sites want to run must be installed by local administrator. Applications should provide install scripts for their work.

- Configure applications components. Each application software should be configured by local new site administrator. Applications should provide configuration scripts or tests for their software.

- Perform local application tests. Each application should provide test suite in order to check the correct installation and configuration of their toolkit as well as its behaviour.

3. REQUIRED MODIFICATIONS TO EDG SOFTWARE

RB MODIFICATIONS

In this section we describe the modification needed in order to have the acceptance process feasible and testbed performances maintained. We need a means to instruct the Resource Broker not to schedule user's jobs to sites being certified. We see two means to achieve this:

- Every testbed user systematically specifies the requirement EDG-CERTIFIED

- RB is configured to so that the matchmaking includes only CEs having the tag EDG-CERTIFIED (when EDG-TEST is specified, matchmaking includes only Ces having the tag EDG-TEST)

We strongly prefer the second means, but it supposes modifying the RB matchmaking process so that only EDG-CERTIFIED sites be considered.

SITE REGISTERING MODIFICATIONS

Join the testbed means to be registered in the appropriate information index of each available resource broker. We need some kind of lite certification/acceptance process before a site can join the applications testbed. The aim is to help new sites to join in a controlled way. Even if your site is registered on the II, you as a site administrator have several means to make sure that user jobs don't be scheduled for execution in your site : Grid-mapfile, RunTimeEnvironment definition, … another reason to modify the registering is that a site administrator must be able to remove his own site for maintenance purposes. In order to prepare EDG middleware to the growth of site number, we must

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allow the site registration to be removed not only by testbed administrator but also by site administrator. A centralised process should be a bottleneck if the site number grows.

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TESTS SUITES

An EDG test suite must be released in order to let administrators test their own sites. This test suite should include installation, configuration and basic EDG functionality tests. The development of this test suite is currently under way in TSTG.