DPM scalability test plan

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Objectives

Evaluate the behavior of the DPM when highly loaded.

Check the space management functionality when different users and highly loaded.

DPM Configuration

HW Setup

- 1 DPM head node : 6GB of memory + 8 cores
- 10 disk servers (8 cores) : 30 TB of storage each, xfs as a filesystem
- 1 node for the MySQL server
- 80 clienst (8 cores each)

All the machines are 64bits and have Gb NIC.

Configuration done via Yaim

We will use Yaim to install and configure the DPM. We will install the latest version from our internal repository 1.6.10.

First we will make a default setup for DPM.

Variable parameters

Depending on the results of the tests, we may need to change parameters. Here the two main types of variables we think essential

The default number of threads for the DPNS is 20: we may need to increase it. The maximum number of threads for the DPM is 100. By default there are 20 slow and 20 fast threads.

We will apply the default parameters for rfio : but we may change some values via rfio_setopt (RFIO IOBUFSIZE, RFIO_READOPT, version of rfio v2 or v3).

Advices from Jean-Philippe Baud may be needed to tune the DPM.

We don’t plan to change the filesystem options.

Type of tests

Test 1 : Behavior of the DPM when highly loaded

We will run the tests as long as possible and start with 640 requests to avoid any cpu problems. We will use rfio commands.

Storing files

Each request will store a file of size of 1MB via rfcp to fill up the DPM.

Reading files

Each request will read via rfio_read. We will test the case where they try to read the same file and different files.

Mixture of requests

X requests will store files, Y requests will read files and Z requests will delete files. (X+Y+Z = 640)

Test 2: Space management design

We will test the space token implementation.

We will need to ask for different identities. Each identity will reserve space. Each identity will write, read and delete files from the DPM.

Monitoring

Time measurement

We will measure the time needed to store/read/delete files per requests.

Ganglia

To measure the network and cpu load, memory usages

Results

Graphics will be produced

Results will be reported here: https://twiki.cern.ch/twiki/bin/view/LCG/Scalability_DPM