



HammerCloud Functional tests

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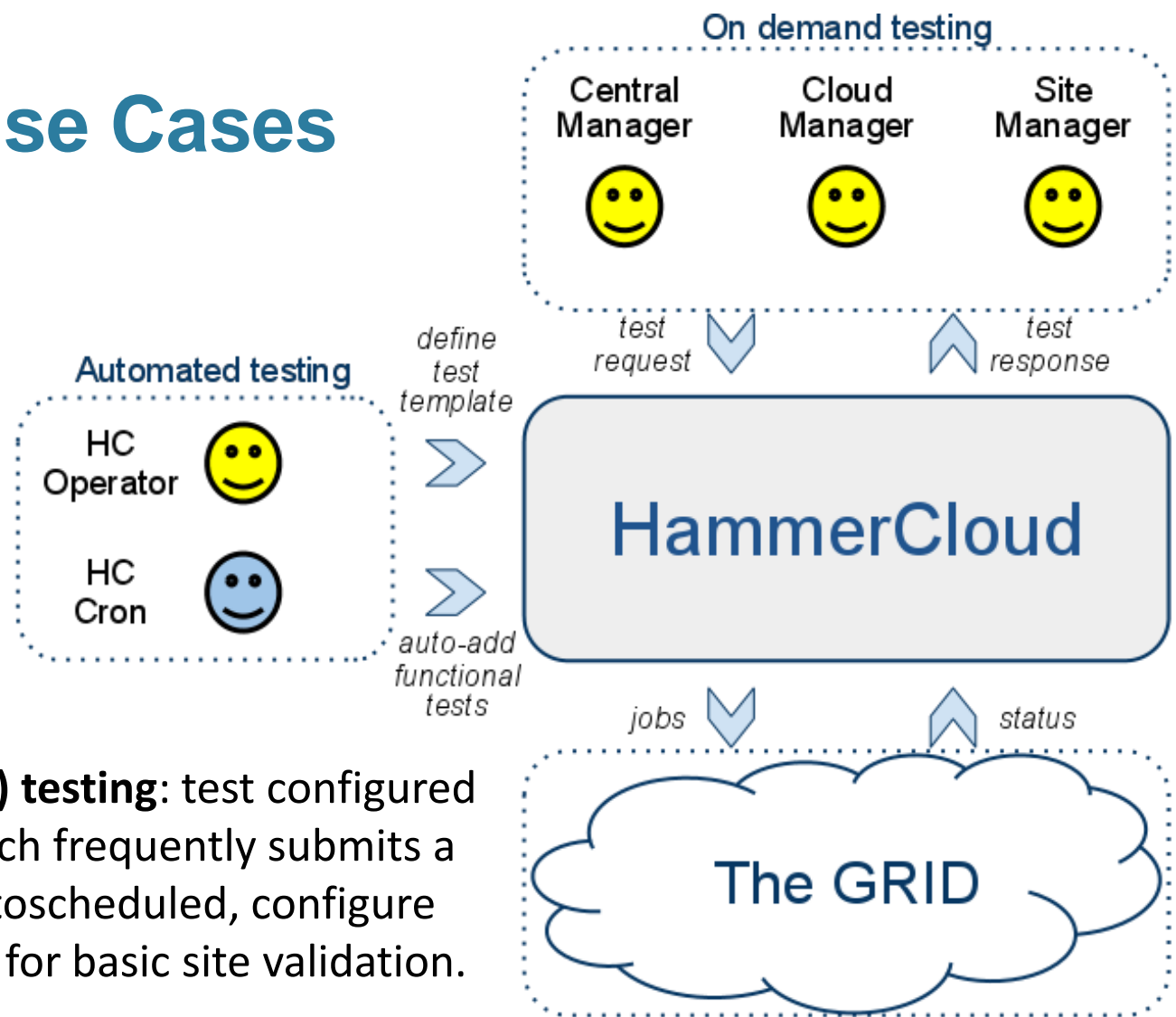
What is HammerCloud

- HammerCloud is a Distributed framework for testing distributed system.
- Frequent validation and stress testing for different resources of a grid site.
- Available in three flavours (applications) for ATLAS, CMS, LHCb

What is HammerCloud

- The HC service is composed of:
 - a backend which submits and monitors the test jobs
 - a user frontend which allows users to schedule tests and to watch the progress of running tests or review completed tests.
- Jobs are submitted and monitored using GANGA. GANGA use a plugin structure to provide interfaces for different systems

Use Cases



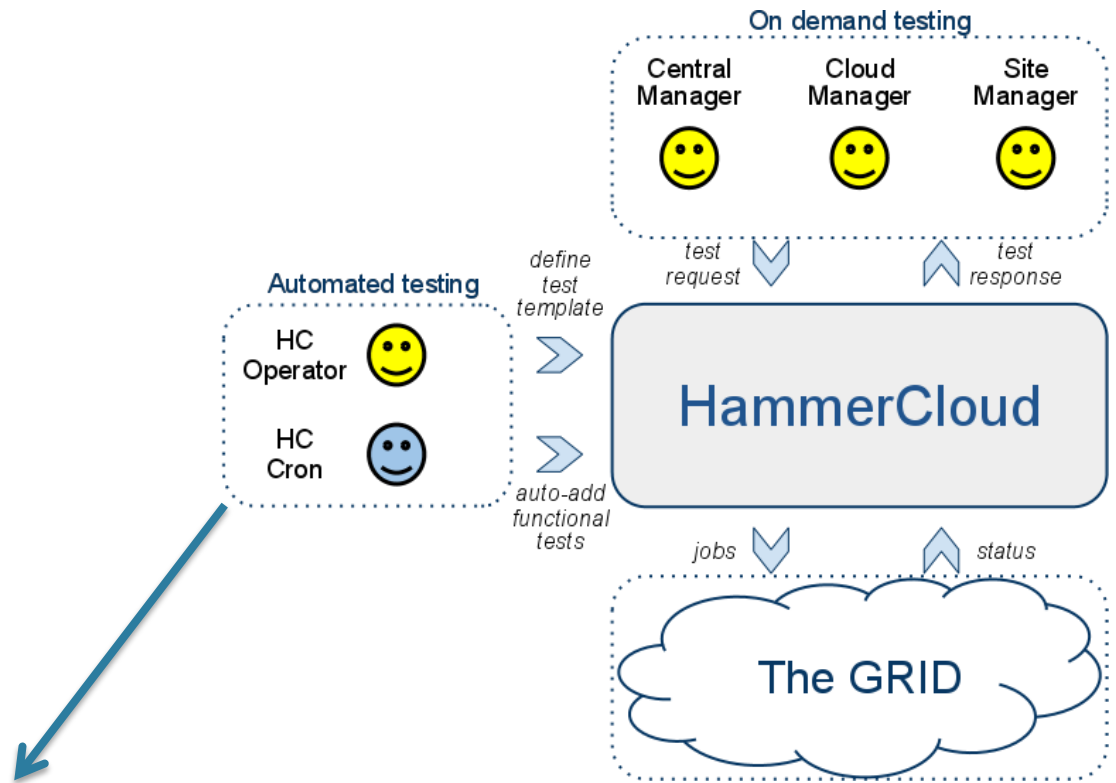
Functional (automated) testing: test configured by experts/admins, which frequently submits a few "ping" jobs. Are autoscheduled, configure once, run forever. Used for basic site validation.

Test and Templates

- Test: main object managed and monitored by HC, it has a start and end time
- Test template:
 - description of a class of tests, contains all the information needed to make the logic behind HammerCloud work
 - Stress test templates
 - Functional test templates

Generating new test = create new test object from a template

Functional tests = Automatically generated from functional test templates



Functional test

For every active functional template the HC cron
 Create a new test if there are none already running or scheduled

How to create a new functional template

- Usually HC operators, permits can be given to users
- Need to provide:
 1. Job template: template for a Ganga job, specify all the parameters that don't need to be configurable at test level
 - Analysis job parameters
 - Sw configurationDepends on the Ganga plugin used (backend)
 2. User code: what to run (analysis, shell scripts...) can vary depending on the system on which Ganga submit

Job Template example

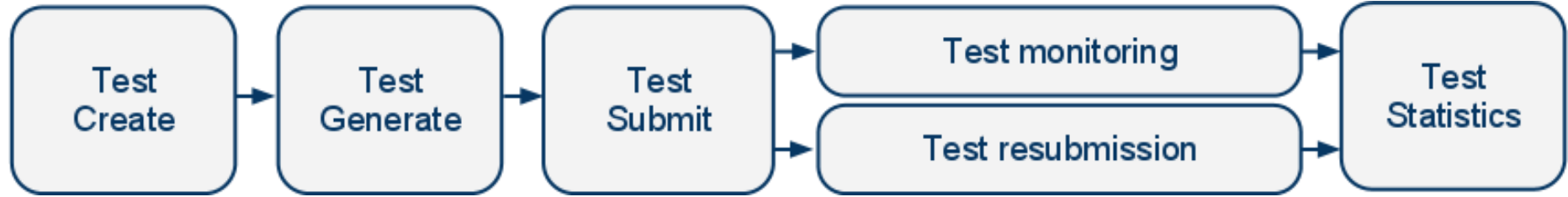
```
Job (
  inputdata = CRABDataset (
    show_prod = 1 ,
    datasetpath = '####DATASETPATH####',
    pset = '####PSET####',
    ignore_edm_output = 1,
    use_dbs_1 = 0,
    return_data = 1,
    thresholdLevel = 0,
    total_number_of_events = 300000,
    events_per_job = 10000,
    split_by_event = 1,
    jobtype = 'cmssw',
    scheduler = 'remoteGlidein',
    submit_host = 'hc',
    rb = 'HC',
    remove_default_blacklist = 1,
    target_site = '####CE_WHITE_LIST####',
    SE_white_list = '####SE_WHITE_LIST####',
    retry_count = 0,
    dont_check_proxy = 1,
    xml_report = 'report.xml',
    role = 'production',
    ssh_control_persist = 'yes'
  ) ,
  application = CRABApp () ,
  backend = CRABBackend () ,
  splitter = CRABSplitter ()
)
```


How to create a new functional template

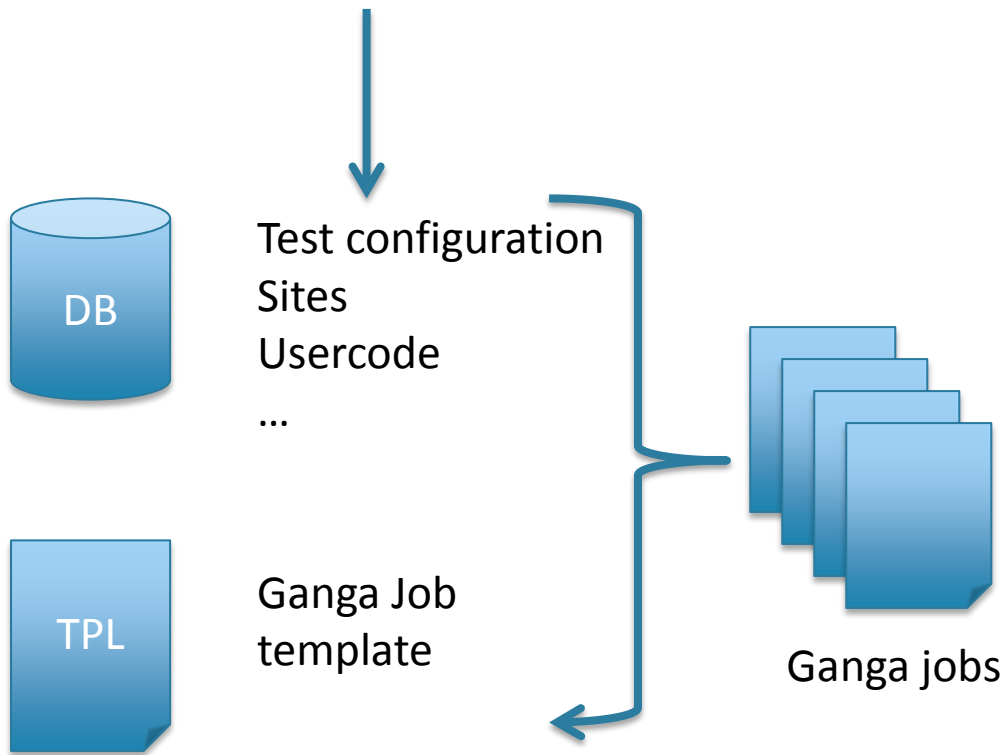
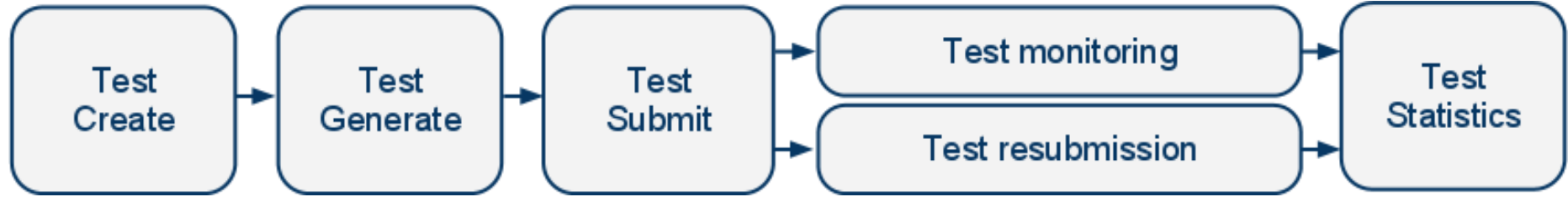
- HC Operators can create and modify Test templates from the HC GUI

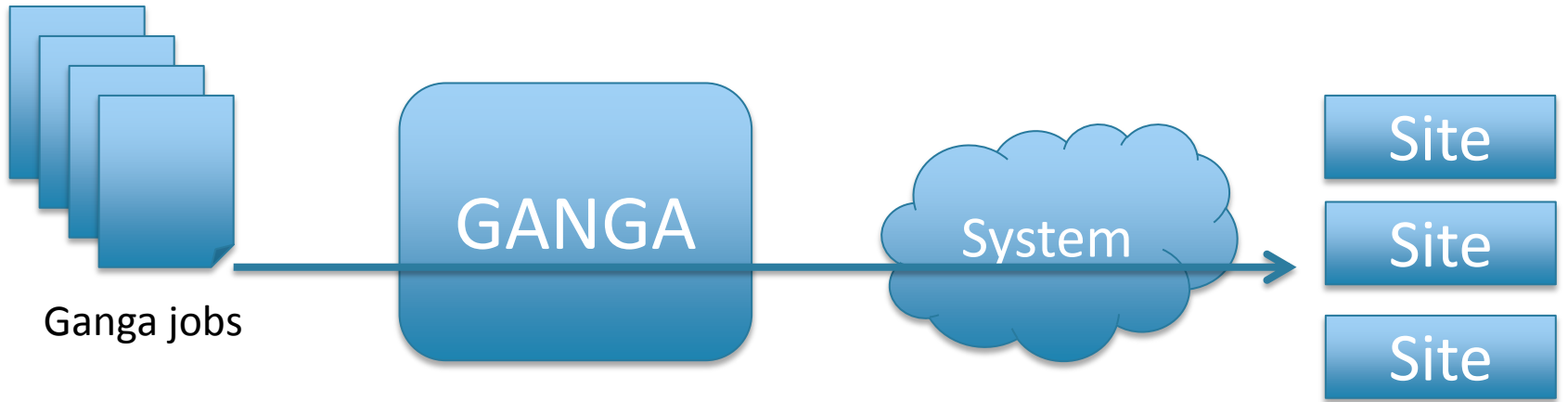
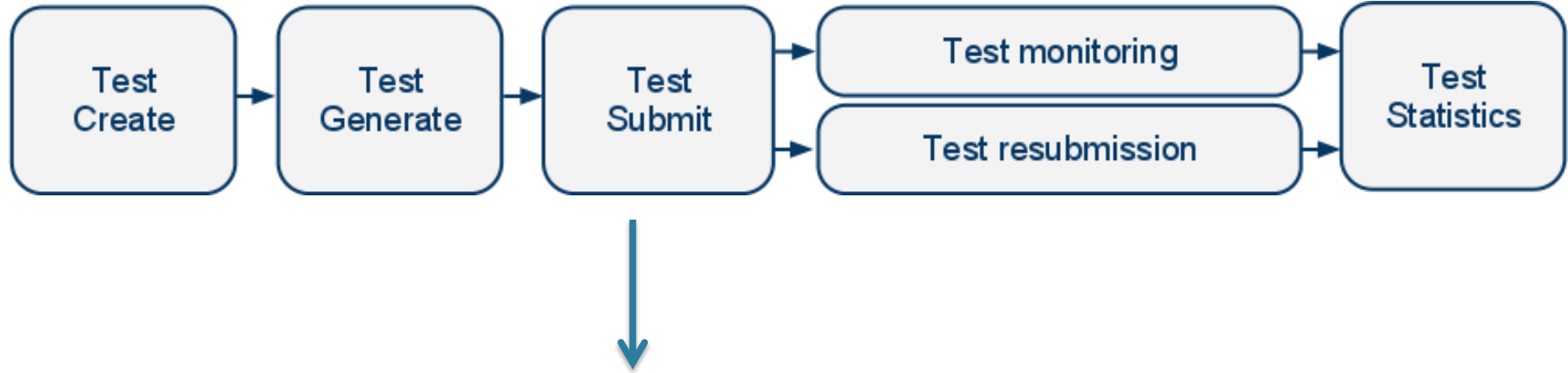
- Demonstration:

<http://hammercloud.cern.ch/>

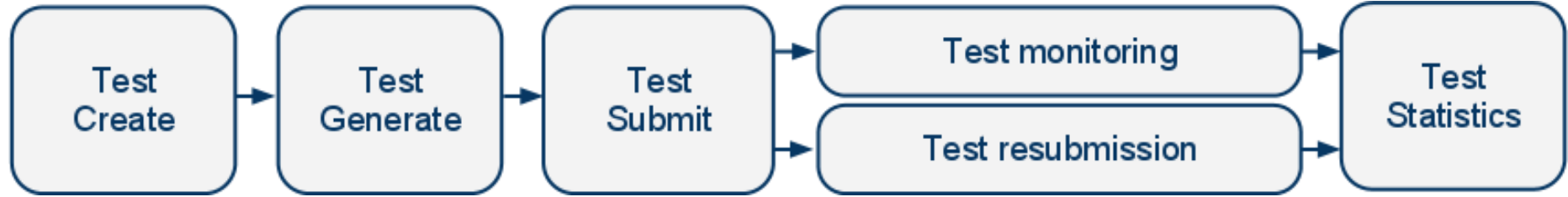


Functional tests
created
automatically by
the HC cron

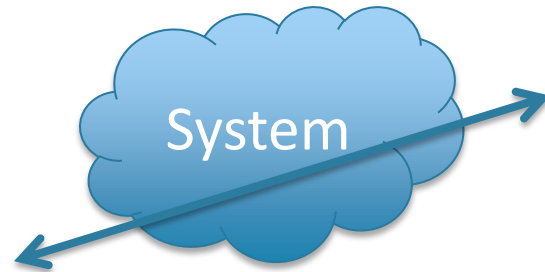
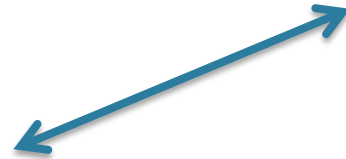


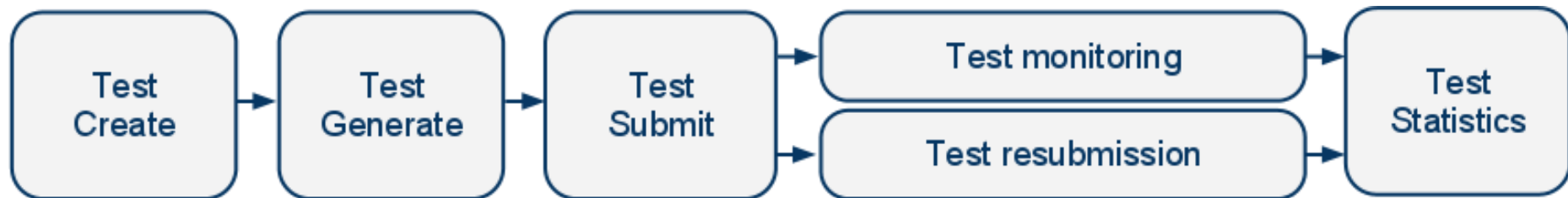


Jobs submission

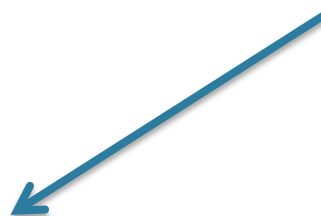
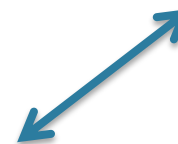


- Job status
- Job results
- Test status





- Job status
- Job results
- Test status
- Test statistics



Statistics

- Test statistics
generated from results of the jobs
submitted by the test
- Statistics from different levels of
aggregations
views created aggregating data related to
different tests, developed depending on
the application (ATLAS, CMS, ...)

Main use

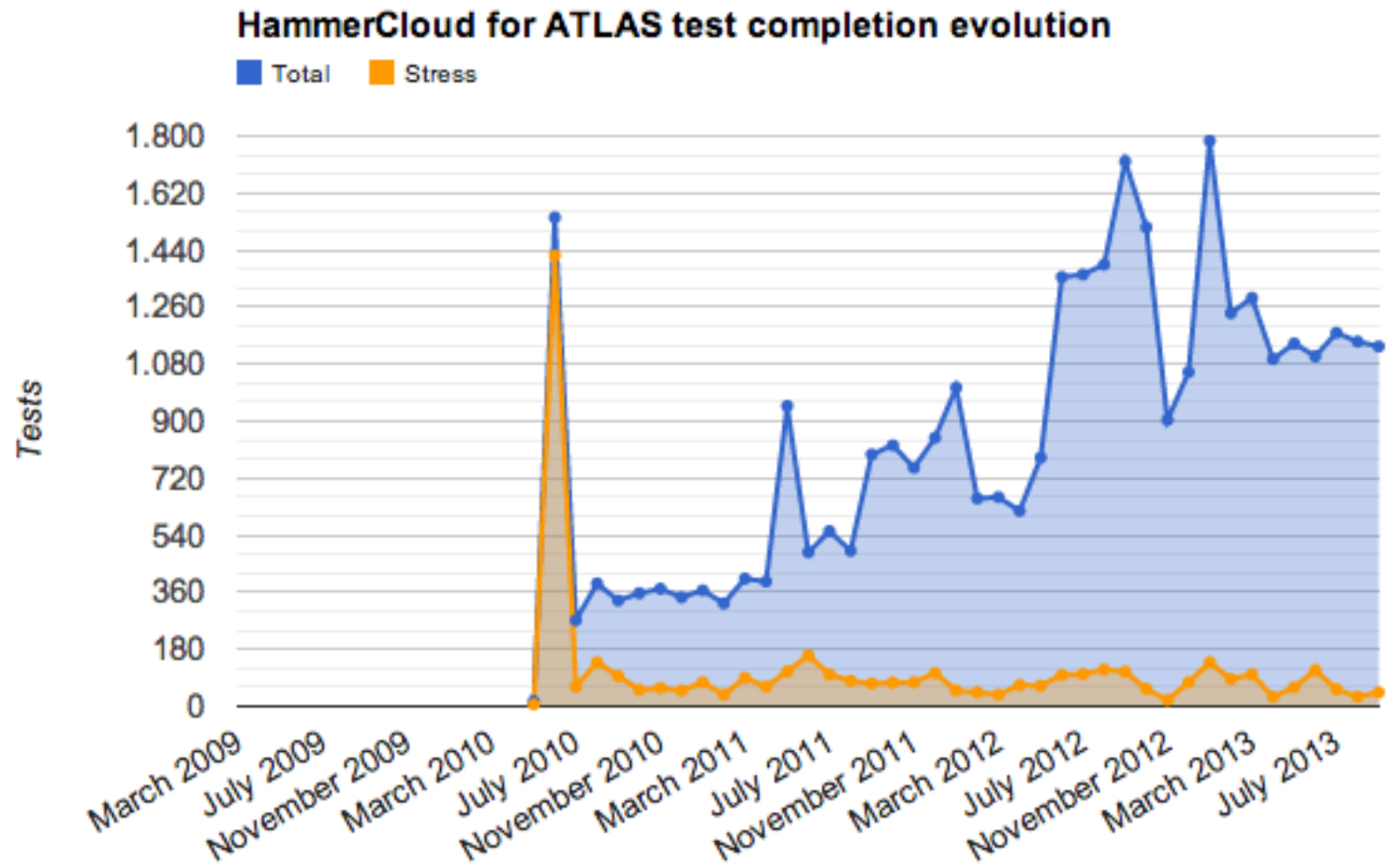
ATLAS:

- Site functional tests (AFT/PFT used for **Site auto-exclusion**)
- Panda pilot development test jobs
- Athena Nightly Build System

CMS:

- Functional tests: HC provides Job Robot functionality for grid operators with **site performances evaluation**

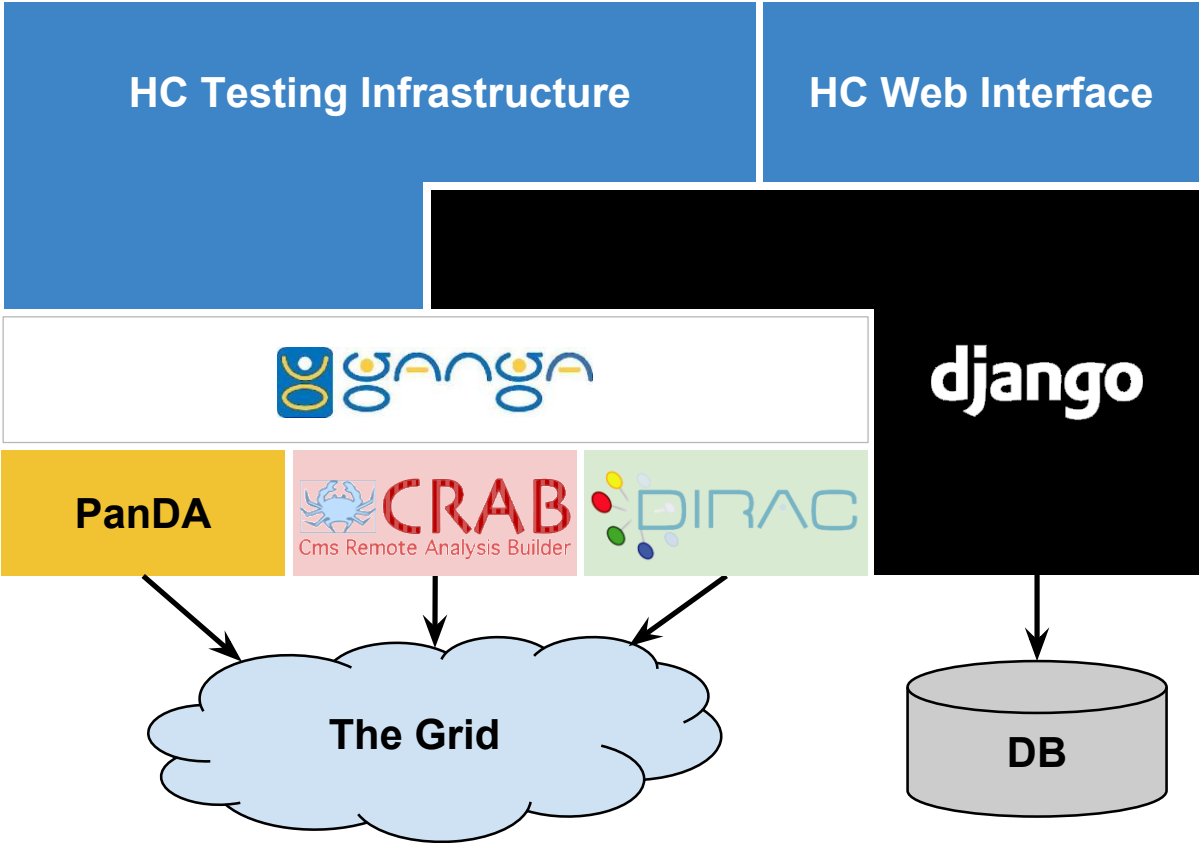
- About 30 Functional tests running
- 40k jobs submitted every day



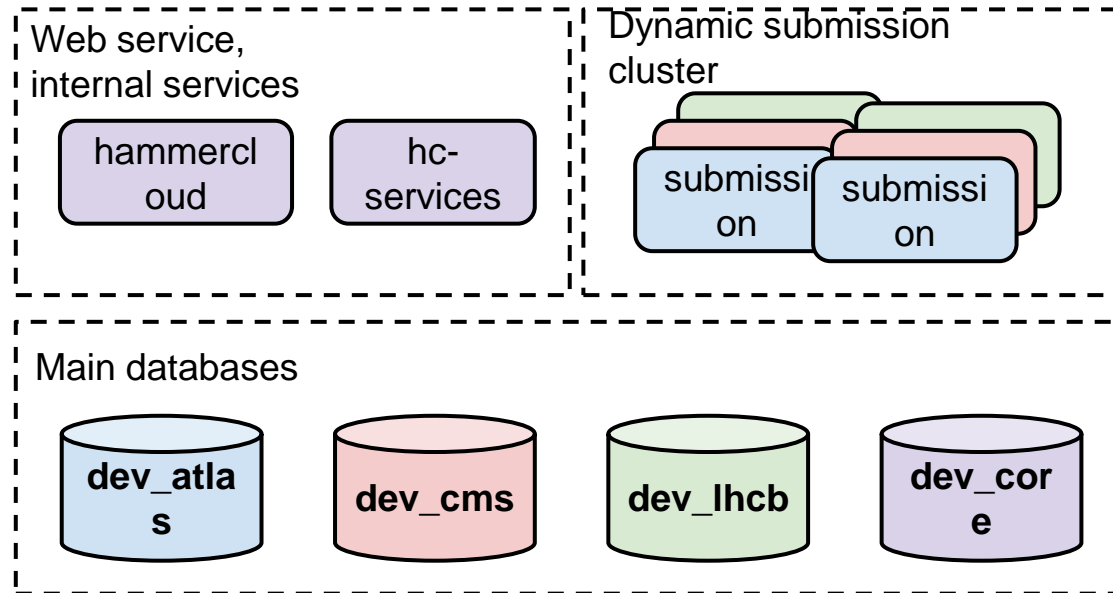
Questions



Implementation



Architecture



Change template

✖ Delete

Type information

Category: functional

Description: PFT_MCORE mc12 AtlasG4_trf 17.2.2.2

Lifetime: 1

Period: 43200

Active

Is golden

Obsolete

Files

Jobtemplate: ProdTrans/G4_MC_17222.tpl

Usercode: null

Optionfile: null

Metricperm: PanDA

Inputtype: PANDA

Testoption: prod

Gangabin: /install/HEAD/bin/ganga

Please, use the HEAD version.

Extraargs: -o[Panda]siteType=production -o[DQ2]u: