CMS

Common VO Computing Readiness Challenge'08
CCRC'08 == CSA08[CMS]

Draft Plan v0.03

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Goals for CMS:

Verify solutions to CSA07 issues and lessons

    - don't repeat CSA07 where solution is not ready

Attempt to reach '08 scale on individual tests

    - don't repeat CSA07 where no increase in scale possible

Guiding principles:

- CCRC'08-Phase 1 will be a Computing&Software challenge fro CMS
- Cosmics run, MC production and Physics Analysis have priority and cannot be interrupted by CCRC'08 tests for long
- We defined blocks of tests, which stress a specific service or workflow
- Tests should be as independent from each other as possible
- Tests should be done in parallel where possible
- Individual test is considered successful if sustained for (3-5) days
- Where full '08 scale is not possible (hardware) tests are scaled down to hardware limit

Status of preparation

- **Draft plan of of tests available**

- **Goals of tests agreed by computing**

- **Area or responsibility and coordination is defined**

- **Many tests are to be scheduled together with other VO's (ATLAS, …) to reach scale of stress test**

- **Tests are being coordinated and agreed within CMS (not finished)**
  - **Exact details of tests**
  - **Exact metrics**
  - **Constraints and specify resources required**
  - **Exact schedule of test**

Planned T0 tests

- **Responsible: DataOperations / T0 team**

Unit tests:

1a) Transfers and Tape write
- **nominal rate in conjunction with other experiments**

1b) Repacking of CMS Data at full rate

2) Processing jobs
- **full rate with ATLAS/ALICE jobs in parallel**

Planned T0 tests

- **Responsible: DataOperations / T0 team**

1a) Transfer data from Cessy and write to tape
  - nominal rate in conjunction with other experiments

    - demonstrate transfer into t0input, t0export
    - write to tape at nominal (500 MB/sec)
    - measure tape write rate
    - test dependence on file sizes, types

Planned T0 tests

1b) Repacking of CMS Data at full rate

- **Biggest load for T0**
- **Goal:**
  - **deploy repacker program**
    - TOAST + new PordAgent components = T0 state machine

- **Plans to prepare:**
  - **Isolated t0export pool, completely decoupled from phedex, ready to disable Garbage Collection (when TOAST is deployed)**
  - **Files from Storage Manger (HLT output):**
    - 8 files with lumi info in streamer format (nominal HLT output)
  - **Process data streams:**
    - Repack a single stream
    - Repack multiple streams of same size
    - Repack multiple streams of asymmetric sizes, etc.

Planned T0 tests

2) Processing jobs
– **full rate with ATLAS/ALICE jobs in parallel**

<u>This test has to be synchronized with other VO activity</u>
Goal: study interaction of CMS reconstruction with Atlas, Alice jobs
- goal here is to make some quantitative measurements

CMS event samples are prepared (20M 1_7_4 Minbias MC data)
– **Coordinate submissions with other exp's**

Requirements:
– **Need a tool to sample what the other jobs on the node are doing (#processes, cpu, mem, network stagein/stageout)**
– **Can be launched at 2k job slot scale now, but would be better with full 3k job slots + new hardware from IT**
  - current csa07 nodes not homogeneous, need at least some fraction of the new boxes for this measurement

Planned blocks of tests

3. **CERN data export to T1 at full / high rate**
   - **Goal: verify CERN export and T1 import performance under CMS + ATLAS load**
   - **Responsible: Facility Operations / D.Bonacorsi**

4. **T1 data handling and processing**
   - **Goal: verify full CMS T1 re-processing workflow in presence of ATLAS load at T1's**
   - **Responsible: want to find coordinator from site / DataOperations**

Data Transfer tests

Responsible: Facility Operations / D.Bonacorsi

These tests need to be synchronized with other VO's

3. **CERN data export to T1 at full / high rate**
   - **Goal: verify CERN export and T1 import performance under CMS + ATLAS load**

5. **Data Transfer performance tests**
   - **Goal: verify T1/T2 export + import performance under CMS +ATLAS load**

   5.1 **T1 - T1 data transfer at real rates**

   5.2 **T1 - T2 data transfer at real rates**

   5.3 **T2 - T1 data transfer at real rates**

Data Transfer tests (5.1-3) should be done individually and then together
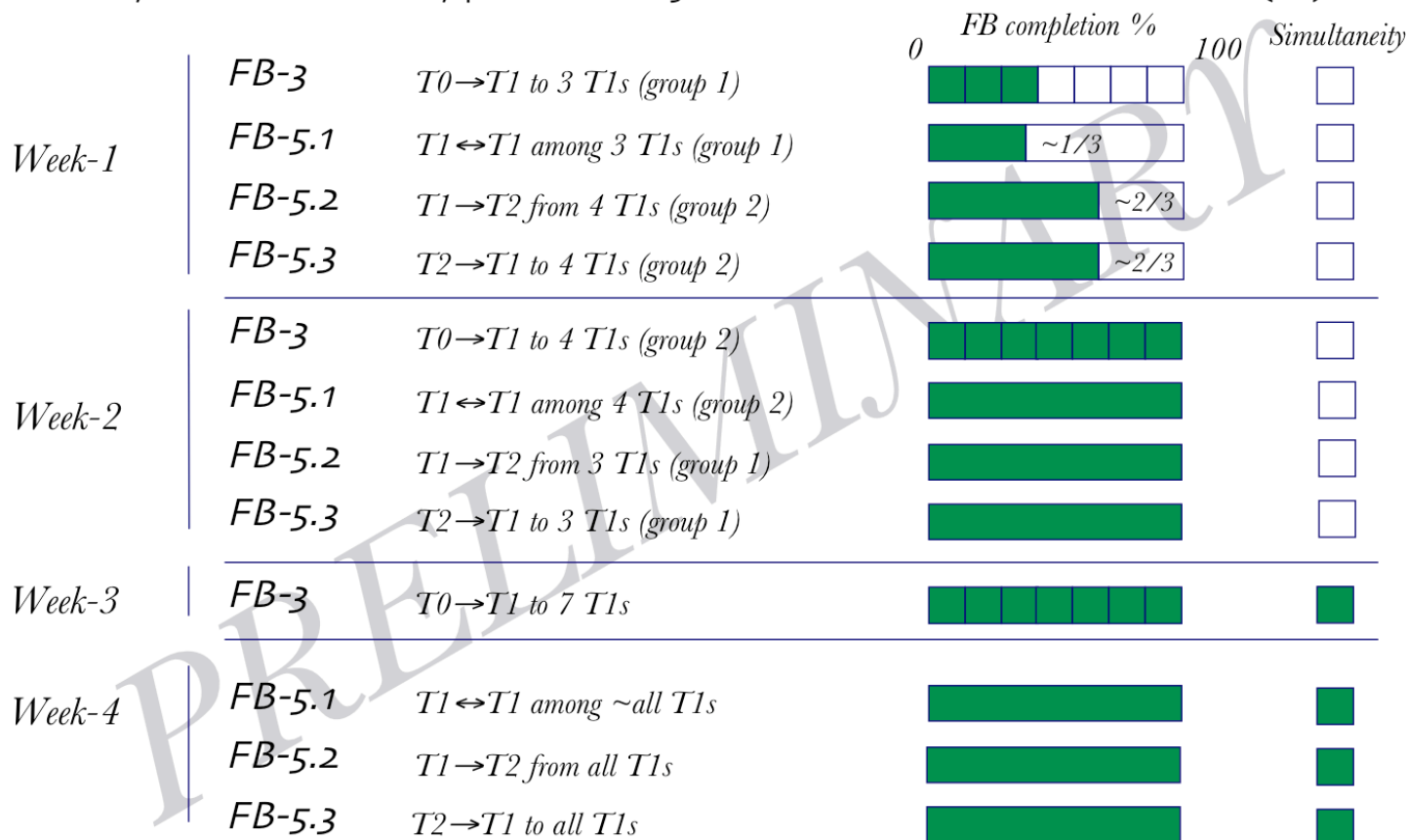
Details are under preparation.

Proposal for the "simultaneity" goal in FB-5

Driven by the need to carefully plan the timing of the sub-tests of the functional block (FB):

			FB completion %	Simultaneity
Week-1	FB-3	T0→T1 to 3 T1s (group 1)	~1/2	
	FB-5.1	T1↔T1 among 3 T1s (group 1)	~1/3	
	FB-5.2	T1→T2 from 4 T1s (group 2)	~2/3	
	FB-5.3	T2→T1 to 4 T1s (group 2)	~2/3	
Week-2	FB-3	T0→T1 to 4 T1s (group 2)	100	
	FB-5.1	T1↔T1 among 4 T1s (group 2)	100	
	FB-5.2	T1→T2 from 3 T1s (group 1)	100	
	FB-5.3	T2→T1 to 3 T1s (group 1)	100	
Week-3	FB-3	T0→T1 to 7 T1s	100	■
Week-4	FB-5.1	T1↔T1 among ~all T1s	100	■
	FB-5.2	T1→T2 from all T1s	100	■
	FB-5.3	T2→T1 to all T1s	100	■

In some of these weeks, other tests can be accomodated (e.g. To processing in all, T1 processing in week-4, …)

CMS CCRC'08 preparation meeting - 20 Dec 2007   D. Bonacorsi   6

Planned blocks of tests

6. **Monte Carlo Production and Analysis at Tier-2**
   - **Goal: verify Pile-up and FastSim production at Tier-2 centers**
   - **Responsible: Data Operations / MC productions coordination**

7. **Data transfer request system tests**
   - **Goal: verify Data Transfer and SE's at Tier-2 centers**
   - **Responsible: PADA taskforce**

8. **CAF tests: (depending on CAF infrastructure schedule)**
   - **Goal: verify basics CMS use cases at scale**
   - **Responsible: Facility Operations / P.Kreuzer**

Status of preparation:

Weekly CMS Coordination meetings, next Thursday 17.1.

Next step: define tests in more details:

- **test metrics**
- **Exact scope:**
  - **Which sites participate**
  - **Data volumes handled**
- **resource requirement**