

# T1 risk assessment

Scenario 1 - "Data loss at a T1"

Scenario 2 - "Partial loss of a T1"

Scenario 3 - "Procurement failure at a T1"

Scenario 4 - "Extended T1 outage"

PRELIMINARY – Daniele Bonacorsi – Last update: 22 Feb 2010

Two possible issues are covered:

- ◆ “procurement delay”
  - it should not happen if T1’s do purchase in advance of need. It would grow the longer a T1 could not meet their pledges to CMS. It should not be an immediate problem (aka: no immediate actions) if all pre-warning are given with some advance to the Computing Coordination and the Ops teams.
- ◆ “technical problem in putting into production recently procured resources”
  - it could be an immediate problem. The actions depend on the details of the problems (see first bullet below)

Actions:

1. Assess the details. Talk to the affected T1 staff people, and include WLCG in the info sharing. Acknowledge the emergency state, schedule ad-hoc communication flow among {Data, Fac}Ops and CMS representatives at WLCG daily calls.

Distinguish among a failure in CPU procurement, and a failure in disk procurement.

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For a **failure in CPU procurement:**

2. Go through the “SHORT / MEDIUM / LONG” considerations as from the “partial loss of a T1” scenario, and additionally assess with the Computing Coordination the severeness of the failure, in terms of implications on CMS workflows.
  - ➔ See the “Scenario 2” worksheet (for the “SHORT / MEDIUM / LONG” considerations)
3. The previous info is something, but not enough. Use some intelligence to assess if the failure was severe enough to decide to offload processing to other T1’, or if otherwise there are chances to recover soon. A back-up T1

may or may not be needed, and depending on this different actions arise, as follows.

4. If a back-up T1 is **not needed**:

- ◆ Follow the recommendations as of “Scenario 2”, “SHORT” case
- ◆ Additionally:
  - Assess if the T1 production team will be able to manage the balance between different CMS activities in a reduced CPU’s scenario.
  - May also explore co-opting T2(/T3) resources<sup>1</sup>

5. If a back-up T1 is **needed**:

- ◆ Follow the recommendations as of “Scenario 2”, “MEDIUM/LONG” cases
- ◆ Additionally:
  - Evaluate implications for the bandwidth
  - May also explore co-opting T2(/T3) resources

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For a **failure in disk procurement**:

2. Go through the “SHORT / MEDIUM / LONG” considerations as from the “partial loss of a T1” scenario, and additionally assess with the Computing Coordination the severeness of the failure, in terms of implications on CMS workflows.

- ➡ See the “Scenario 2” worksheet (for the “SHORT / MEDIUM / LONG” considerations)

3. The previous info is something, but not enough. Use some intelligence to assess if the failure was severe enough to decide to highly reduce the amount of data that the T1 can hold on disk, or if otherwise there are chances to recover soon.

- ◆ If so, the T1 staff may want to investigate adding extra tape drives to improve staging performance

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<sup>1</sup> A number of T2(/T3) have “special” access to ‘their’ T1. E.g. RALPP T2, CCIN2P3 T2, FNAL T3. In a case where CPUs at the remaining T1’s are a problem (rather than disk or tape), these resources could be used to help ‘their’ T1 to sustain the load.