LHCb SC3 Requirements and Goals

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- **LHCb Phase 1 (September $\Rightarrow$):**
  - **Goals**
  - **Requirements:**
    - **Participating Sites**
    - **Middleware**
    - **Resources**
    - **Metrics**

- **LHCb 2 (October $\Rightarrow$):**
  - **Goals**
  - **Requirements:**
    - **Participating Sites**
    - **Middleware**
    - **Resources**
    - **Metrics**

- **LHCb Phase 0 (July $\Rightarrow$)**

LHCb Phase 1

- **Starts in September 2005 at begining of Service Phase of SC3.**

- **Aim:**
  - **Exercise Data Management tools:**
    - **CERN to all Tier1's (large and small files)**
    - **Tier1's to Tier1's**

- **"Substained" Scheduled Transfer test using a central FTS and FC, plus SRM interface to MSS.**

- **Sites Involved:**
  - **CERN**
  - **CNAF, FZK, IN2P3, NIKHEF, PIC, RAL**

LHCb Phase 1 (a)

- **Distribute Data from CERN to Tier1's.**
- **Storage:**
  - Temporary access to 8 TB MSS at each Tier1 (for the duration of the Phase 1).
  - All files ~500 MB.
- **Network:**
  - Out of CERN:
    - 40 MB/s $\equiv$ 24 TB/week
  - In Tier1:
    - 6.5 MB/s $\equiv$ 4 TB/week
- **FTS & FC:**
  - Create 6 replicas for 16k files (1$\rightarrow$6).
- **Metrics (for CERN and each Tier1):**
  - Pass: keep the rate for 1 week
  - Success: keep the rate for 2 weeks

(*) Rates are 30-40% of 2008 needs.

LHCb Phase 1 (b & c)

- Remove "old" Data and n to n Data distribution.
- Storage:
  - **Temporary** access to **8 TB** MSS at each Tier1 + CERN.
  - All files $\sim$500 MB.
  - Removal of unnecesary replicas (5/6) (*)
- Network:
  - Point to point (Tier1 to Tier1|CERN):
    - 3.3 MB/s $\equiv$ 2 TB/week
  - In Tier1:   In CERN/Out Tier1:
    - 17 MB/s $\equiv$ 10 TB/week   20 MB/s $\equiv$ 12 TB/week
- FTS & FC:
  - Create 6 replicas for 16k files (6$\rightarrow$7).
- Metrics:
  - Pass & Success: Removal of 96k replicas in < 24 hours.
  - Pass: keep the rate for 1 week.
  - Success: keep the rate for 2 weeks(*).

(*) 1.3 TB kept on each Tier1, transfer restarts.

LHCb Phase 1 (d)

- **Distribute Data from CERN to Tier1's (small files).**
- **Storage:**
  - Permanent access to 1.5 TB at each Tier1 on fast access Storage (disk with SRM interface prefered).
  - 1/3 of files 50 kB
  - 1/3 of files 500 kB
  - 1/3 of files 500 MB
- **Network:**
  - Out of CERN:
    - 10 MB/s $\equiv$ 6 TB/week
  - In Tier1:
    - 1.7 MB/s $\equiv$ 1 TB/week
- **FTS & FC:**
  - Create 6 replicas for 9k files (1$\rightarrow$6).
- **Metrics (for CERN and each Tier1):**
  - Pass: keep the rate for 1 week

LHCb Phase 2

- **Starts in October 2005 during Service Phase of SC3 after Phase 1, running for 2 months.**
- **Aim:**
  - Exercise Job Scheduling together with Data Management tools:
    - **Functional test of DC06**
  - Exercise File Catalogues:
    - **Study performance with 1-10 M entries and 100 M replicas.**
- **Data processing jobs scheduled as Data become available and distributing the result.**
- **Sites Involved:**
  - Production:
    - **Any LCG site supporting LHCb, except Tier1's**
  - Processing:
    - **CERN, CNAF, FZK, IN2P3, NIKHEF, PIC, RAL**

LHCb Phase 2

- **Get MC Data to Tier1's|CERN, stripped Data, and distribute result.**
- **CPU:**
  - **Non Tier1:**
    - **400 @ 2.4 GHz WN's**
  - **Tier1|CERN:**
    - **2 @ 2.4 GHz WN's / site**
- **Storage:**
  - **Permanent access to 10 TB over all Tier1+CERN on MSS, RAW.**
  - **Permanent access to 350 GB at each Tier1+CERN on fast access Storage (disk with SRM interface prefered), DST.**
- **FTS & FC:**
  - **~50k produced files + 1k Stripped files.**
- **Metrics:**
  - **Stripping @ Tier1:**
    - **Pass: 80% of jobs finished within 24 hours of data being available.**
    - **Success: 95% of jobs finished within 24 hours**
  - **Distribution of DST to other Tier1's:**
    - **Pass: 80% of stripped DST at 5/6 other Tier1's within 8 hours. All in 2 days.**
    - **Success: 95% of stripped DST at 5/6 other Tier1's within 8 hours. All in 2 days.**

Services Required

- **CERN:**
  - Dedicated LFC (separated from LHCb production one).
  - FireMan FC (for FC stress testing).
  - Central FTS DB and Server.
  - SRM v1.1 to MSS with gridFTP.
  - LFC, FTS Client Tools.
  - Hosting Machine for VO Agents (could be based on jobmanger-fork component of LCG CE) with managed file system.
  - gLite CE
- **Tier1:**
  - Read only LFC (>1 Tier1).
  - SRM v1.1 to MSS with grifFTP.
  - LFC, FTS Client Tools.
  - Hosting Machine for VO Agents (could be based on jobmanger-fork component of LCG CE) with managed file system.
  - gLite CE
- **Tier2:**
  - SE with SRM or gridFTP access.
  - LFC, FTS Client Tools.

Phase 0

- **Starts in July 2005 with begin of Setup Phase of SC3.**
- **Aim:**
  - Test tools necessary for tasks in Phases 1 and 2.
- **Limited Transfer Access test using a central FTS and FC, plus SRM interface to MSS.**
- **Sites Involved:**
  - CERN.
  - CNAF, FZK, IN2P3, NIKHEF, PIC, RAL.
  - "Friendly" Tier2's.
- **LFC, FTS Client Tools (LCG-2_5_0).**
- **Resources:**
  - 1 TB Storage at Tier1's