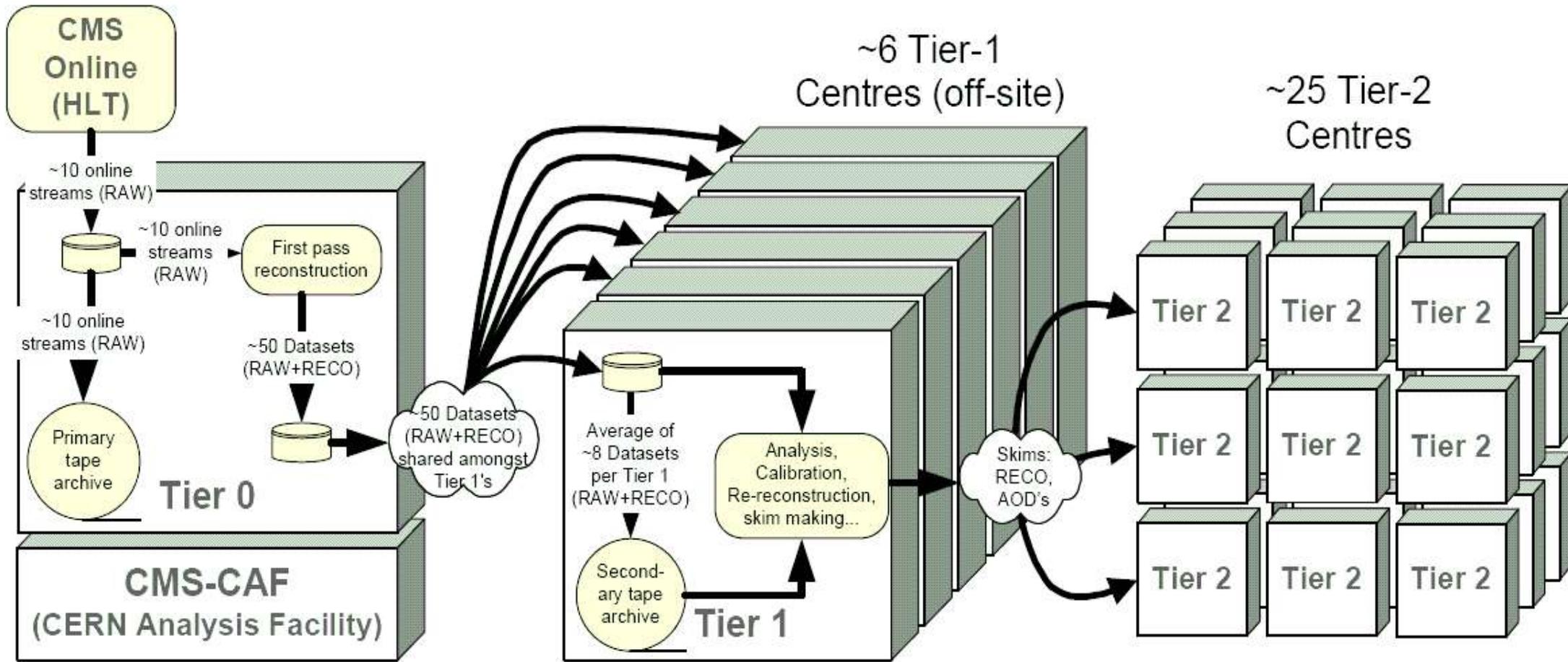




Anja Vest, Uni Karlsruhe

FZK T1-T2 workshop, October 2005

- CMS computing model
- Service Challenge 4 plans
- Summary

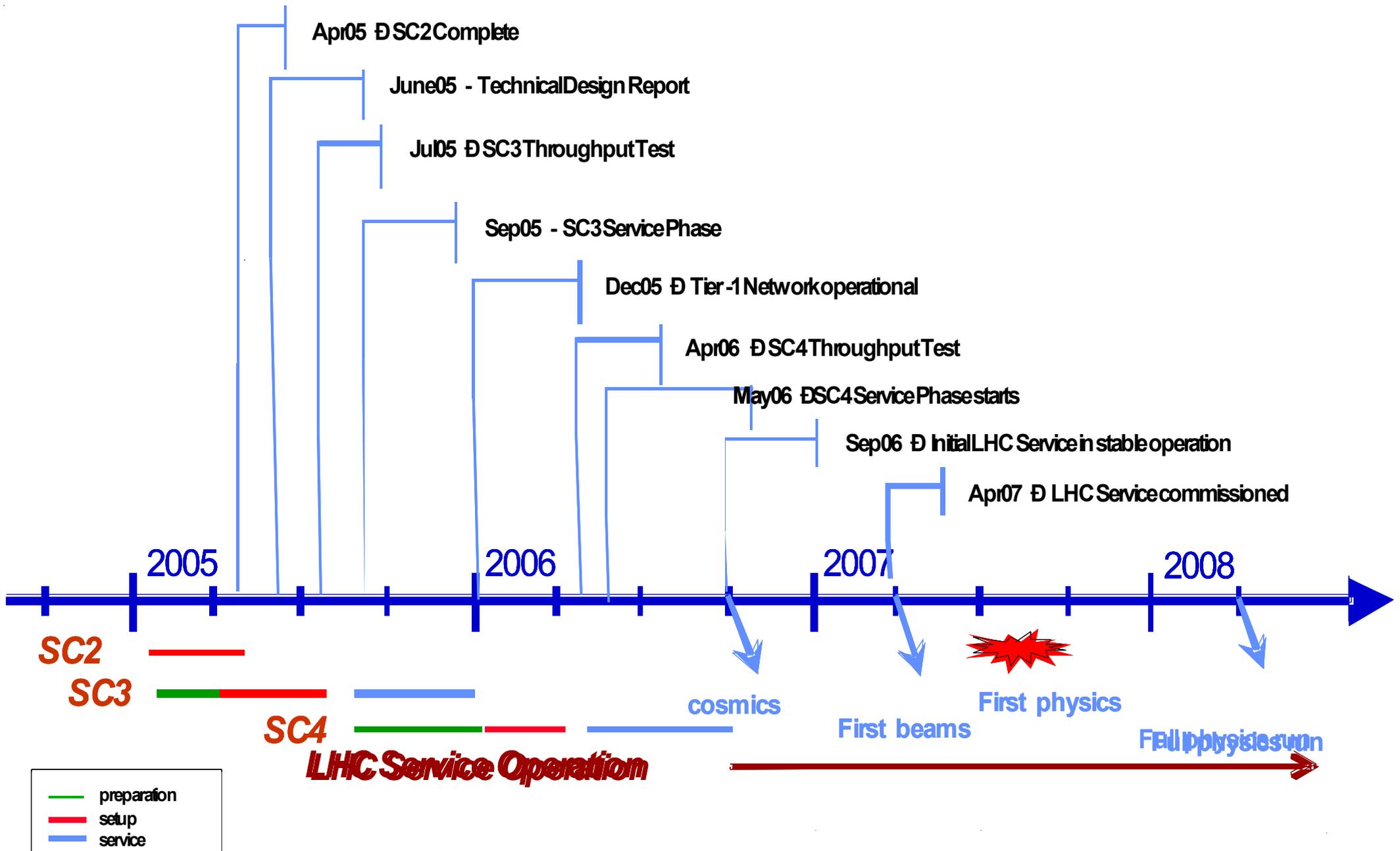


- **Tier-1 Germany:** GridKa (size: ~ 0.5 average CMS Tier-1)
- **Tier-2 Germany:** Aachen/DESY federation
(Aachen: MC production, calibration; DESY: user analyses)
- **Also:** strong interest in attachment to GridKa expressed from Tier-2 in Poland and in the Czech Republic



- **Detector data distribution at high priority**
 - One copy at CERN, one distributed copy at regional centres (Tier-1)
 - “custodial” copy of the FEVT (comprises RAW and RECO) data
 - Expected transfer volume for 2008: $\sim 7 \text{ PB} \approx O(10\text{M})$ files
 - Required transfer speed for 2008: $\sim 5 \text{ Gb/s}$
- **Simulated data distribution at low priority**
 - Among and between regional (Tier-1) and local centres (Tier-2)
 - Skim, RECO and AOD (Analysis Object Data) transfers
 - Expected bandwidth utilisation:
Data transfer rates Tier-1 \leftrightarrow Tier-2: $\sim 1 \text{ Gb/s}$ per Tier-2

LCG service challenge timeline





Build and consolidate on achievements of SC3!

Early 2006:

Support for PTDR analyses has highest priority until April

- Grid based user analyses
- dCache based servicing of ~ 40 TB data volume
- T1 ↔ T1 and T1 ↔ T2 data transfers, PhEDEx based
- Fast Monte Carlo simulation by users

Followed by:

- Migration to new data format (**E**vent **D**ata **M**odel)



Prepare for first data from LHC

Second half 2006:

Computing, software and analysis challenge

- Check ramp up of computing resources and their scalability
- Time shared usage of ~ 50 % of CMS needs at LHC start up
- Sustained data transfer rates of O(100 MB/s) to tape
- Perform important data processing steps:
 - Reprocessing jobs on FEVT
 - AOD production and distribution
 - Physics jobs
- Calibration jobs on dedicated raw data sets
 - Initially at GridKa, later migrate to Tier-2



Second half 2006:

Computing, software and analysis challenge

(...continued)

- **LCG based Monte Carlo** production:
 - Set up at FZK and then migrate to Tier-2
- **AOD transfer** to Tier-2
- **User analyses** at Tier-2
- Increased **reliance on WLCG services** (where appropriate)
(e.g. PhEDEx, FTS, CMS/LCG, file catalogues, RB usage)



- Until April 2006:
 - Support for PTDR analyses with highest priority
- Start of SC4 in April 2006
 - Throughput test start in April
 - Service phase start in May
 - Build and consolidate on achievements of SC3
- Prepare for first data from LHC with SC4 tests of
 - computing resources
 - data transfers
 - data processing / calibration jobs
 - grid based user analyses
 - LCG based MC production
 - WLCG services