



LHCb has for the first time massively used NAF.





- One of our students had insufficient statistic available in particular channels
- The request to produce the data by LHCb production team is not an option
 - Old generator software is obsolete and no longer supported by current production software
 - New generator software is in test phase so data can't be produced within required time period
- "Home" production is not an option

• With "in house" 70 cores it will take too long



Procedure



- Official DIRAC workflow was created
- Required software installed on NAF
- Scripts for management written
 - official tools not applicable
 - multi steps jobs in GANGA are not yet supported
- Jobs are implemented as local DIRAC jobs submitted through SGE (no DIRAC WMS)
- Data are uploaded to NAF SE





- Jobs use lcg-cp to upload the results (SRM)
- In case of failure, results are stored on AFS and manually uploaded later







- The same workflow was used to submit part of the jobs throw DIRAC WMS to DESY T2
 - Full software tar (5Gb) had to be deployed by each job since software is not in VO area and NAF AFS is not accessible
 - Failover to AFS is not possible, failover to other Tiers is not feasible



Progress







- Production took a bit more than one month
- We were able to use a lot of resources









- We have successfully produced ~49M events (13M signal + 26M background) in ~26k jobs
 - Job success rate was > 99%
 - Failures reasons were:
 - DIRAC internal bug (and features) ($\sim \frac{1}{2}$ of failures)
 - BDII (unavailable for short time once)
 - SGE crash (triggered by us?)
 - Temporary AFS access problem (several jobs only)
 - ~2% of jobs used failover to AFS (after failure to upload with SRM)





- NAF was very stable, we had no problems with computing itself. Thanks to interactive access, deploying and testing was fast.
- SRM is unstable (random in time failures)
 - We have to adopt Lustre for failover (is it ready?)
 - Srm-Is is extremely slow. We need d-cache Is (is it ready for us?)
- Thanks for very nice 'facility' :)







- That exercise was exceptional: there is no plans in LHCb to use NAF such way
- At the same time, it shows that NAF can successfully solve urgent computing problems for German LHCb group
- Since Official productions dominate in DIRAC (have higher priority over user jobs), contribution from T2 part of production was small