

FT11 Tactical Plan for **D0 Offline Support**

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Relevant Strategic Plan: - CD, Run 2 Computing

D0 Offline Support Goal –

- Provide D0 offline needs to enable the computing which allows the experiment to publish physics results in a timely manner while scaling the system to deal with increased data sets and increasing instantaneous luminosity.

D0 Offline Support Strategy –

- Provide D0 experiment with computing resources including computing servers, CAB, project disk spaces, tape storage, and databases for physics analysis.
- Maintain the high performance of D0 data and Monte Carlo production efficiency in Grid environment using SAMGrid.
- Improving the performance of D0 project areas usage to meet the physics analysis needs.
- Increasing Data Production Farm capacity to meet the need of handling the higher luminosity data processing.
- Finalizing the development of luminosity database.

D0 Offline Support

FY09 Accomplishments:

- Processed 1.6 Billion data events from April. 11, 2009 to April. 10, 2010.
- Generated 1.4 Billion MC events from April, 11, 2009 to April 10, 2010 at remote sites computing resources, including non-Grid, OSG, native SAMGrid and EGEE sites.
- D0 data processing now can run smoothly at GP farm, this helps D0 to process the increased data set.
- D0 MC production jobs now can run on EGEE sites.
- Worked with FEF Dept. provided a stable operation for physics analysis on the CAB.
- Worked with BlueArc team and FEF Dept., improved D0 project disk access, especially the performance of the BlueArc access is improved.
- Worked with ENSTORE team to provide access to tape with a reasonable speed, and added two new LTO4 drives to D0 offline storage.
- Will work with ENSTORE team to add one more LTO4 drive to D0 offline storage and two more LTO4 drives to D0 online storage to improve the tape accessing.
- Will work with FEF Dept. to replace part of more than four years old CAB worker nodes, which have been running without service contract for more than a year.

Not Accomplished in FY09:

- Not able to replace all of four year old CAB nodes due to reduced budget.
- Not be able to replace old project disks and servers which have expired service contract due to zero-ed out budget.
- Not be able to add any project disk space to BlueArc, which caused a lot of problems in accessing (at times more than 99% BlueArc disk space used) and not able to satisfy the physics analysis needs. D0 did a major cleanup, but project disk space is still very tight, which can easily be filled up during next analysis peak period.

Objectives for FY11

1. Continue working with CD Scientific Facilities and Scientific Core Services to purchase and deploy new hardware. Plan for hardware purchases using input from the D0 experiment.
2. Continue working with CD Scientific Facilities and Scientific Core Services to provide support for the computing and disk facilities, SAMGrid, SAM data handling, central storage, central databases.
3. Continue working with D0 experiment collaborators to explore the usage of Grid for D0 physics analysis, especially for CPU intensive analysis like Matrix Element analysis.
4. Continue working with FEF Dept. to provide D0 CAB users smooth computing.
5. Continue working with CD BlueArc team to improve the performance of D0 project disks.
6. Continue working with D0 experiment collaborators to perform Monte Carlo production using OSG, native SamGrid, EGEE and non-Grid resources.
7. Will try to get the data processing jobs to run at CMS-FNAL-Tier1 site.
8. Maintain the high efficiency for D0 data production using SAMGrid.
9. Work with D0 experiment to address computing operational issues, to help D0 users get physics analysis results in a timely manner.

Activities and Work Definition

Activity = D0 computing coordination and project management

- Activity type: service
- Timescale: continuous
- Metrics: number of physics papers

Activity = D0 data and MC production

- Activity type: ongoing
- Timescale: continuous
- Metrics: number of data events processed; number of MC events processed;

Activity = D0 SamGrid support

- Activity type: service
- Timescale: continuous

- Description: Support operations of the SAMGrid component of the DØ Grid Production system used by the DØ data and Monte Carlo production. Maintain the SAMGrid components on various nodes, make improvements to the system, monitor and respond to problems.
- Metrics: Uptime of SAMGrid components; SamGrid production efficiency;

Priorities:

The priorities are to continue smooth operations, particularly for offline support, and production processing.

Staffing:

The staffing will include CD personnel assigned to D0 specific tasks for supporting the offline computing, farm production, SamGrid support and managing the D0 reconstruction executable. Guest scientist serves as an important resource to coordinate Monte Carlo production. The staffing is sufficient, but lean to provide operational support. There is little ability to take on priorities beyond these essential and basic needs without increasing effort.

Change control:

New objectives or projects will come at the request of the D0 spokesmen and computing coordinators. Adoption of solutions will be negotiated between D0 representatives and the CD relevant department management. Changes initiated by the REX Department that materially affect the existing levels of service provided to the experiment must first be discussed and approved by the D0 spokesmen or D0 computing coordinators.

Risk Assessment:

1. The D0 experiment is becoming very thin on effort. The CD might be asked to take on additional responsibilities.
2. It is important to maintain adequate hardware equipment for D0 production and physics analysis needs, including keeping the out of service contract equipment renewed, including upgrading the capacity to meet physics analysis needs.
3. The offline support for D0 computing needs is essential and very important. Insufficient support will negatively affect D0 physics analysis and publications.