# Computing Division Budget outlook for FY04

CDF International Finance Committee
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# FY04 Budget process concluding

- We have an essentially flat-flat budget in Computing Division for FY04
- We have completed a first pass budget process of prioritizing all of the needs
- As a result of the planning process (in particular for the recent Run II Computing Review) we understand quite a bit about CDF's needs for FY04
  - More about this in a few slides ….

# During FY03

- Our Division re-organization has worked to consolidate some functions
  - we continue to work to improve our operational efficiency
  - we continue to strive to evolve our workforce to the skill-set we need for the future
- We have downsized by 10 people during FY03
  - Need to replace *at least* 2 of them
  - Need additional specialized skills in areas under pressure
    - Computer Security
    - Networking
    - Databases
    - Storage and Data Handling systems, Grids
  - Need to staff the CMS Software and Computing Project and other projects as they ramp up (e.g. BTeV)

# What Computing Div. provides for CDF

- Services (Networks, Helpdesk, Scientific Software, ….)
- Computing for reconstruction and analysis
- Database machines and services
- Robotic Storage and services
- Tapes
- Hardware and Software maintenance
- People to operate and support
  - Computers and Farms
  - Code releases
  - Data handling and Storage systems
  - Databases
- People to continue to evolve systems to
  - Meet needs
  - Support new technologies - eg. 9940B tapes drives, LTO2, LTO3 etc
  - Align with Grid world
  - Evolve hardware and software infrastructure
- Guest Scientist support
- Postdocs and Scientists who help with Computing issues
- WAN planning and evolution

Considered in Common Fund

Nominal fraction
Considered in Common Fund

# Measures taken to balance FY04 budget (From April 2003 presentation to IFC)

- ✓ Aggressively pursue Linux-based analysis
  - ✓ Reduce maintenance costs by starting to remove big SGIs
- ✓ Reduce consultant costs
- ✓ "Tax" all equipment expenditures for needed Computer Center infrastructure/studies
- ✓ Move more staff to work on non-base-funded projects
- ✓ Reduce staff
- ✓ Reduce division and departmental infrastructure costs (e.g. laptops)

# Overview of "Spreadsheet" Expenses

| Common Expenses | FY03 Finals | FY04 Plan |
|---|---|---|
| SGI/Sun/Robot Maintenance. | 347K | 371K |
| Oracle Maintenance. | 40K | 40K |
| Cisco Maintenance. | 60K | 75K |
| Tapes. | 183K | 0 |
| Network Support (1.0 FTE) | 96K | 99K |
| Hardware Maint. (0.6 FTE) | 46K | 47K |
| Code Mangement (2.9 FTE) | 278K | 287K |
| Central Mass Store (1.0 FTE) | 96K | 99K |
| Total: | 1146K | 1018K |

# CDF Highlights from the Run II Computing Review, Chaired by Ian Bird.

- The CDF CAF is a major success.
- Likewise, implementation of dcache/Enstore is a major success.
- Resource parameters are adequately understood: The cost model for increasing data rate is reasonable.
- Advised to move more quickly on SAM-GRID for CDF and D0 and to align Grid work with CMS and grid project efforts. This will enable full leveraging of external resources. *Realizing this requires a major campaign within the Computing Division.*

# CDF FY04 needs from CD (from Run II Computing Review)

- $1400K + $390K in capital equipment costs.
  - This assumes the CSL and subsequent offline computing plan moves ahead in FY04. $1500K is budgeted.
- Computer Center Infrastructure (space, power, cooling) to support all of the above
  - Expensive upgrade to FCC in FY03 – concluding.
  - Satellite computing center at Wideband lab, August '04.
- Wide Area Network (+strategy and upgrades)
  - OC12 from EsNet + Dark Fiber to Starlight (soon)
- Ongoing services (most of costs of these do not appear in spreadsheets ) at FY03 level
  - E.g. need to keep evaluating and commissioning new tape technology and migrating tapes
- Ongoing operations efforts at approx FY03 level

# Summary

- Fermilab and the community want the greatest scientific output with the least operational cost.
- Minimizing operating costs means continually searching for efficiencies and mechanisms to leverage costs. Progress has been made, but we need more. *Can the GRID deliver here??*
- Currently the Computing Division is contributing at least 25 FTE's of support to CDF. This cannot substantially increase. There is a challenge and an opportunity here for the CDF community *to realize high performance GRIDs that can in the future minimize costs and maximize the science.*