

# Strategy and present hardware

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- Combine scattered Italian institutions to minimise effort, avoid (for the moment) an “Italian National CDF computer center”
  - PAD based analysis at Fermilab
  - Copy Ntuple to Italy
  - Locate at FCC the resources for all work on 2<sup>ndary</sup> data sets (disk, CPU, user’s space). Use those from Italy.
- So far: DISK (~4TB, mostly not there yet)
  - 20% users 30% common good (RH tax) 50% data
  - Data shared with collaboration (e.g.  $top \rightarrow 6j$ ,  $B \rightarrow \pi\pi$ )
- Trailers for transients
  - Only desktops ( $N_{\text{desks}} \sim N_{\text{cpu}} \ll N_{\text{physicists}}$ )

# Data Access and Copy

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- 1<sup>st</sup> phase: copy Ntuple from FNAL to Italy
  - Need capability to archive (in DFC?) locally on tape 2<sup>nd</sup>ary and 3<sup>rd</sup>ary Data Sets, and non-AC++ data formats
  - Present copy tools (kerberised ftp/rcp) OK
  - Bandwidth FNAL → ITALY: 50Mbit/sec
  
- 2<sup>nd</sup> phase: export 2<sup>nd</sup>ary data sets to Italy
  - tape ( @FCC) → disk ( @INFN) data caching on WAN
  - reverse also desirable
  - GRID like tools
  - Bandwidth FNAL → ITALY : 300Mbits/sec
    - ☞ from CDF 5787 (a bit scaled up):  
10MByte/sec/user x 20 user x 20% cache miss = 40MByte/sec
  - Add Italy → FNAL: 500Mbits/sec by ~2005

# Problems, Difficulties

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- Working outside the gate:
  - Documentation: where are the data
  - Documentation: what exactly was done to them
  - Documentation: what has changed in version N.n.n ?
  - Documentation: what is correct tcl file to use
  - help via e-mail helps a lot, but only arrives they day after
  - Will we ever do without "a friend inside" ??
- Debugger:
  - Still rely a lot on TotalView, but graphics from Italy is  
s o s l o w
- Getting the money:
  - Why does your code run so slowly ?
  - How can we be sure you will not be a BaBar x 10 ?

## Italy vs. FKW

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- INFN gave very good feedback for new CAF:
  - Commodity hardware
  - move toward GRID
- Next (2002~3): farmlets at FCC
  - One "farmlet" for every (few) analysis (money for 4 Monday?)
    - ☞ disk also for 3<sup>ary</sup> Data Sets, and/or other data formats
    - ☞ CPU accessible to everybody with "priorities"
  - We need new farm to work, need features, will like to reuse at home
    - ☞ Work on batch system ( $\geq 1\text{FTE @ FNAL} \times 3 \text{ months}$ )
- Future (2003~4 ? Even before Run2b!): GRID
  - Pull the farmlet to Italy
  - Exploit future INFN Tier1, symmetric access to/from FNAL, hopefully still available to everybody in CDF, much easier to have significantly more hardware
  - Only possible because other paving the way (DO, UK, Spain ...)