ROOT Impressions

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CERN

14-12-2006

Near Future

- Include parallel unzipping in ROOT (up to 13% of performance increase with multi-core machines and less than 1% of penalty with one core).
  - Uses a logical circular bounded buffer which always unzips buffers in advance (small probability of misses).
  - Passes to TBasket and TBranch the address of the data on memory instead of requesting new memory (reduces by 30% the amount of allocated memory).

Near Future

- Continue working on remote access optimization.
  - I have to test the implementation of parallel sockets in rootd enabling the cache system (in theory it should be as if we multiplied the MSS by the number of sockets).
  - What will happen when the TCP Window is dynamically calculated (measuring the latency and bandwidth in real time)?.
  - We have to think about providing atomicity for vectored calls of the same user to reduce the latency even further.

Future

- Taking the parallel unzipping as an example, how else can we use the future multi-core machines to improve ROOT's performance? (although I'm still waiting for those 10GHz machines Intel promised when I was starting school :))

Intel plans $1500 10GHz PC…
But not until 2005

  - An immediate idea is to have a read-ahead mechanism for the cache which should reduce the "hiccups" in data transfer.
- But I think this should be separated from using PROOF in a personal computer (obviously different problems).

Future

- I would like to do some research in the way PROOF could use some p2p mechanisms, the first one that calls my attention is peer discovery. As far as I know the master and slaves must be given… I could play a bit to see if we could use the master as a directory service or do something like message flooding to see who is around.
  - This could allow automatic master choosing (who is the strongest one?), dynamic addition (removal) of slaves and even master replacing (if the strongest died let his right hand take over the job)… *is someone else working on these topics?*
  - This could also be beneficial outside the scope of article physics since a closer relationship between peers would allow us to attack fine-grained problems.

Future… in PROOF

- In the future, I see it as a completely transparent application where configuration is almost inexistent…
- i.e. *it just works ;).*