



## *Issues*

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## *Data Security/Protection*

- Protection against catastrophic data loss or corruption
- Several aids available in prototype
  - File-based locking (marking file read-only)
- Need to implement wrappers around Objectivity utilities
  - odeletefd
- HPSS security API proposed
  - Andy Hanushevsky
  - Objectivity have agreed to adopt
  - Timescale?
- Need to force federation to be quiescent for maintenance
  - Hooks in 6.7.1 release

## *Database Backup*

- Minimal level is to backup the catalog at some frequency
  - What rate?
  - Requires federation to be made quiescent
- What other level is required?
- Don't need full backup
  - IN2P3 acts as backup
- Don't yet have a strategy in place

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## *Objectivity/HPSS Integration*

- Initial proof-of-principle was too slow
- Andy working on externally managed disk cache
- Andy also proposed extended AMS APIs
  - Busy response to avoid extended time-outs
  - Load balancing redirection for multiple AMS servers
    - ◆ Increase overall HPSS bandwidth
- Requires work from Objectivity
  - Updates to linkable AMS (Solaris, multi-threaded, Objy V5)
  - Adoption & implementation of extended APIs
- Ongoing discussions
  - Monthly SLAC-BaBar/Objectivity meetings

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## *Management Tools*

- Database management tools
  - Monitor usage & access efficiency
  - Cleanup database
  - Perform replication or re-clustering etc.
  - User Interface rather than programmatic interface
- Evaluations underway
  - Looking at Hudson( Micram) & DRO-Tool (RD45/CERN)
- I'm concerned about scalability
  - Many 10,000s of databases
- Suitable for direct Objy/Java interface
  - Need a few additional licenses

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## *Data Browser Tools*

- Logical view of our data model
  - Users, groups, collections, events, etc.
- Very preliminary prototype for Framework-based applications
  - BdbInspector module
- Prototyping a mixed Java/CORBA/C++ data browser
  - Read-only
  - Thin Java client
  - C++ server uses our protection API

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## Performance Monitoring Tools

- Objectivity gives you some limited statistics gathering tools
- HPSS gives you another set
- Two sets are uncorrelated
- Understanding performance & adequate instrumentation will be crucial
  - Part of the motivation for using BdbRef(T) rather than ooRef(T) *etc.* was to allow for some monitoring to be added
- Not much thought gone into this yet
  - Need to spend (much) more effort on this

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## Usage Monitoring Tools

- Reporting on usage required as part of license agreement
- No tools available from Objectivity
- Concept is to use poll using ootoolmgr application
  - Requires separate polling against every lock server in collaboration
- Intention is to give as task to visiting Russian

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## *Objectivity Usage Statistics*

- >20 sites using Objectivity
  - USA, UK, France, Italy
- 264 licensees
  - People who have signed the license agreement
- 153 users
  - People who have created a test federation at SLAC
- 22 developers
  - People who have created or modified a persistent class in CVS
  - A wide range of developers - 10-15 relatively expert
- 170 classes
  - Persistent classes

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## *Alternatives to sequential iteration*

- Want to look at alternatives
- Multi-level indexing
  - K-D Trees
  - In-memory bit-mapped indexing (HENP Grand Challenge)
- Parallelism
  - Multiple partial collections in parallel
  - Statistics gathering?
  - CORBA?
- Potential for >>10 performance improvement
- Needs personnel to evaluate, design and implement

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## *Incorporation of Feedback from MDC-II, Cosmics, etc.*

- Might need reengineering of existing components
  - Redesign or recoding
  - Tags, collections, etc.
- Tasks in schedule
- Not clear whether we have the personnel to do this as well as add new functionality, provide user support and production support

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## *Other Experiments/Collaborations*

- RD45
  - *BABAR* conditions database as basis for LHC experiments
  - Feedback from us
  - Feedback from them
- Atlas
  - Evaluating our event data model
- HENP Grand Challenge
  - Possibility of sharing
- LHCb
- All low priority
  - But not zero!

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## *Initial Production Support*

- Next few months will be particularly difficult
  - Still need significant additional functionality
  - Need to support production database(s)
    - ◆ MDC-II
    - ◆ MDC-II prime
    - ◆ Cosmics
    - ◆ Experiment
- Operating budget not available until Jan 1999
  - Database administrator is included
- When can we issue a job description & start search?

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## *Schedule Monitoring*

- Very frustrating when personnel not available and no firm start dates or commitments
- I've given up on any meaningful tracking
- I have a task list and we're working through it as effort becomes available
- Only response to late completion is to reduce length of outstanding tasks to avoid problems showing up on overall schedule
- Not clear that I've gained anything at all from reporting

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## Personnel

- I still have concerns over personnel
  - I note that I'm still many FTEs less than my original estimate
    - ◆ ~84 (most optimistic accounting) instead of predicted 102
- I have a few core people and several part-timers
  - Hard to predict when anything is going to be ready when
    - ◆ You've never done it before
    - ◆ You don't know when people are going to show up
    - ◆ People who do show up have to be trained in technology
    - ◆ When people visit SLAC & then leave, they effectively disappear
- *BABAR* is going to get what they pay for
  - I believe the technology is appropriate for our use
  - We are not providing enough personnel

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## Conflicting Priorities

- Adding of new functionality, or...
- Improving stability and robustness
- User community is very large compared to developer community
  - > 100 users
  - ~3-4 developers
- No formal support personnel
- We need help in providing user support
  - Documenting procedures
  - Responding to bug reports

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## *Specific Personnel Requests*

- Invite Jean-Noel Albert back for another 6-12 month stay at SLAC
- Issue database administrator job posting and start search
- Get help from collaboration in area of user support
  - Document procedures
  - Problem solving
- Start looking for a physicists to feel responsible for
  - Event store
  - Conditions database