

# *BaBar Databases*

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# *Outline*

- ◆ Recent activities
- ◆ Current development
- ◆ Summary

# *Computing Review (Apr'02)*

Conditions DB redesign (milestone: June'02)

Deployment of Objy analysis at Tier-C sites (milestone: Dec'02)

Bridge fd phase II deployment and development

Load balancing in analysis and OPR federations

Reducing size of the ESD in Objy (milestone: Dec'02)

# *Condition DB Redesign*

- ◆ Originally scheduled for June 15
- ◆ Going well, almost done
  - Lack of manpower to migrate proxies
    - Extra burden on the core CondDB developer
  - Current plan:
    - Production ready by Aug 15
    - Introducing in Padova ~ Sep 1st

# *Analysis @ Tier C*

- ◆ Deadline: Dec'02
- ◆ Two main components
  - Bridge fd phase III (extracts collections into export federation)
    - Due June 30 '02
    - Project completed, delivered June 13
  - BdbServer ++
    - Most components in place
    - Need to piece them together, test and release
- ◆ Found out how to share skim data between tier C sites
  - Will test and announce soon

# *Bridge Federation Phase II*

- ◆ Finished
  - Lock collisions finally solved, confirmed by several people, works
    - A bit too late to really help skims
- ◆ Bridge federation project is now completed
  - all 3 phases

# *Load Balancing*

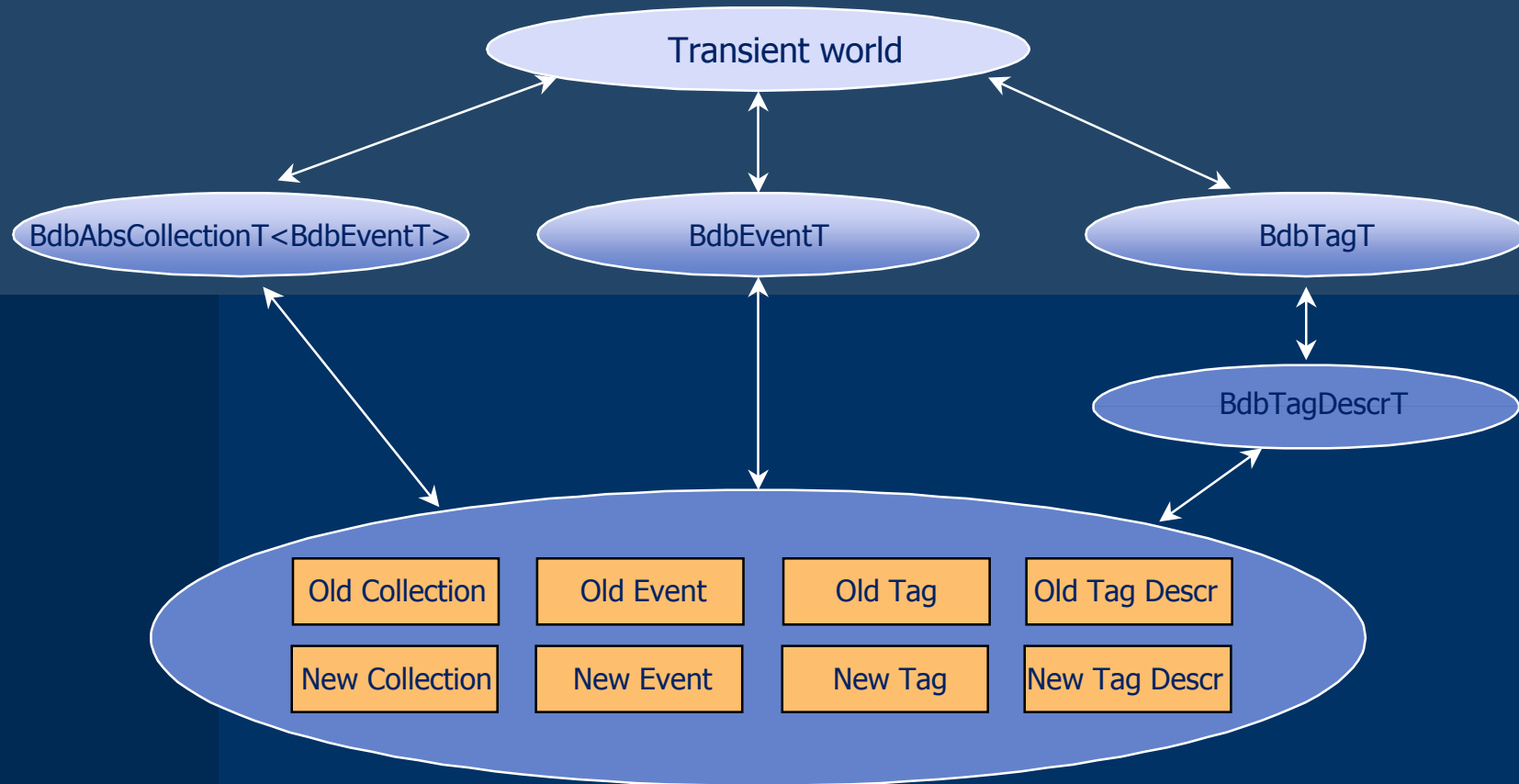
- ◆ AMS redirection/automatic load balance
  - Work in progress
  - Original deadline 2ndQ'02 extended, now 3rdQ'02

# Event Size

	default	ootidied
Navigational components (evshdr, tag, col, evt)	3541	3073
Nav + micro	6904	6048
Nav + mini	14539	12544
Nav + micro + mini	17902	15520

See Bdb website  
for more details

# Hiding Persistence to Allow Event Store Evolution



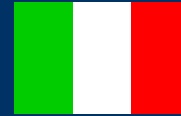
# *Event Store Redesign*

- ◆ Reducing event size
  - Navigational components (evt, evshdr, tag, col)
  - Introducing “*common objects*” – data common for many events stored once
- ◆ Making performance improvements
- ◆ Adding features
  - Mapping: collection → files  
Will take ~sec (compare to hours)
  - Tag descriptor stored with tag, not collection, ability to have different tags for the same collection
- ◆ Cleaning up code

# *Event Size Reduction Project*

- ◆ Navigational components
  - Yemi, and myself, June-Dec
- ◆ ESD (micro)
  - Visitor from Novosibirsk, Aug-Nov
- ◆ Target date: Dec 2002, in release 13
- ◆ Feedback welcome
  - Will consult with you
  - Hypernews enough? Mini-workshop?

# Padova



- ◆ Assisting - significant Bdb effort
  - From SLAC
  - 2<sup>nd</sup> Bdb visit to Padova pending
- ◆ All bdb-related problems solved
  - AMS on Linux
  - pud daemon easily reconfigurable now
  - Many issues due to different configuration
    - continuously create new problems

# Misc. 1

- ◆ RW migration in Bdb code
  - Done by Anders (thank you!)
  - Successful, in 12.2.0
- ◆ Server-side compression
  - Ready for use, not in production, requires new AMS server, do not want to disrupt now
- ◆ Working on persisting *stateID*
- ◆ Few small problems
  - Like the one with tag descriptor – fully solved

## *Misc. 2*

- ◆ Objy 7.1 coming
  - 1st week of August
  - Large file support on Linux, code helping to deal with lock collisions, few other features
- ◆ Client CPU usage
  - Current setup not helping
    - Very fast clients, ‘ancient’ servers
    - Percheron (lots of data, many CPUs, only 4 AMSes – AMS often a bottleneck)
      - Problem eliminated

# *Don't Compare Apples w/ Oranges*

- ◆ Client CPU usage
  - CPU burnt by Kanga to decompress
- ◆ Event Size
  - Objy data contains more information, e.g. metadata used by data distribution, event headers for all components
  - Extracted (deep-copy) micro-level data (with navigation): **4.1 kB/event**
    - ootidied: 3.8 kB/event
    - gzipped: 3.3 kB/event

# *Manpower*

## ◆ Development

- Simon 0% on BaBar starting July 1st
- New position at SLAC opened
  - Expected to fill ~Jan 03
- Conditions: Igor
- Event Store: Yemi, myself

## ◆ No changes in BdbOps

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# Summary

- ◆ Event Store Redesign. Expect:
  - Event size (micro) well below 5kB
    - Now ~7 kB, or ~4 kB if extracted
  - Significant performance improvements
- ◆ Padova effort
- ◆ Good progress with all main projects
- ◆ The group got smaller
  - Do not worry, we can manage 😊