BaBar Online Report

Elba Collaboration Meeting, May 2005
Eli Rosenberg on behalf of the Online Group
Outline

- Operations
- Data Flow (ODF)
- Online Event Processing (OEP)
- Run Control (ORC)
- Detector Controls (ODC)
- Online Databases (ODB)
- Prompt Reconstruction (OPR)
- Computing (Cmp)
Operations

Katherine George

- DAQ Operations running smoothly
- Online release 13.0.1 installed in IR-2 (~May 6th)
  - based on offline release 18.0.2 and dataflow version Odf P08-10-11
- DAQ training of pilot shifters with Run Coordinator
  - Pilot training session held on average, every other Wednesday (according to demand)
- Continual review & updating of documentation
  - Short term DAQ instructions (webpage)
    - Edited as circumstances dictate
  - Troubleshooting Guide to the DAQ (webpage)
  - DAQ chapter of the ‘Care & Feeding’ manual (CVS)
Data Flow

Chris O’Grady, Amedeo Perazzo, Matt Weaver

- DCH electronics upgrade.
  - phase 1: "half sampling" DCH electronics upgrade working well.
  - phase 2:
    - single-event upsets from radiation in prototype "phase 2" box (about 0.5 per day) observed
    - plan to produce install “phase 2” boxes in October and study radiation problem (will work on making FPGA logic redundant in order to be more robust against radiation).

- working with PEP to understand backgrounds

- working with PEP to understand beam spot shapes.
Bunch length measurement complete
- June 2004 HER/LER bunch lengths: \((11.1 \pm 1.1)\) mm.

Marginal timing problem discovered while repairing ROMs
- all TPC ROMs that can corrupt data at high L1 rates.
- Requires retrofit with an extra capacitor to delay a clock by 3ns.

Spares situation the best it has ever been.
Online Event Processing

Jim Hamilton

- Post run, per-subsystem automated histogram processing has been created
  - Executes a per-subsystem command passing L3, fast monitoring, and PEP fast monitoring histograms as soon as all three are available.
  - One subsystem (L1T) has implemented this; two others have expressed interest.
Run Control
Boda Franek, Jim Hamilton

- Developed a mechanism that allows subsystems to precondition the detector for a global calibration. (This currently just means ramping the voltages to desired calibration levels.)

- DCH and DRC are implemented.
- SVT and IFR to be implemented.
Detector Controls (1)

Sherry Chu, Jim Hamilton, Steffen Luitz, Matthias Wittgen

- Migration of IOCs to EPICS 3.14.X complete
  - 3.14.X is a portable EPICS version running on UNIX, vxWorks and RTEMS)
  - Channel access clients reconnected very slowly ⇒ timeouts now reduced
  - All BaBar device drivers are migrated to 3.14.X
    - CanBus and SIAM drivers also ported to RTEMS
  - CEN-BIP running out of network buffer
    - adjusted task priorities and increased number of buffers
  - IOCs running very stable now
  - SVT Low Voltage is responding very slowly ⇒ under investigation
Detector Controls (2)

- Future of ODC
  - new IOCS: Motorola MVME5500
    - 1Ghz PPC CPU 512 MB of RAM
    - successfully deployed in LST test stand in CEH
  - switch to RTEMS on PPC
    - free real-time operating system
      - don't need to buy new vxWorks licenses
  - replace more 68K IOCs by PPC
Online Databases
Andy Salnikov

- Continue migration away from Objectivity
  - Configuration database implementation is complete, and in production in 18.x.x releases

- Still using Objectivity implementation, but have active mirroring to ROOT
  - will start distributing ROOT data soon

- Working in background on MySQL access control
  - will be ready to switch to MySQL ~this summer
Online Databases (2)

- Continue migration away from Objectivity (cont’d.)

- Ambient database - no news

- Prompt Reconstruction databases - currently concentrated on migrating these
  - will be in ROOT, but with abstract interface independent of Objy or ROOT
  - Interface mostly ready
  - Will need to work on packages' dependencies (again)
Prompt Reconstruction

- XTC files are now pre-filtered for PC by the logging manager servers, and both full and pre-filtered XTCs are stored on bstore.
  - Automated procedure started with run 5.
- A first pass of pre-filtering old runs has been completed.
  - This process continues as we discover problems related to missing and damaged runs.
Most systems are now Scientific Linux 3 and the rest is RHEL3.

Everything is working fine.