



DAQ Integration: Status, Plans



- **DAQ Integration status**
 - Hardware component integration
 - Front End Builder
 - Global Trigger Processor Emulator
 - Software Component Integration
 - RCMS, EVB and Event Filter
 - Plans
 - FMM integration
 - GTPe integration
- **DAQKit**
 - next releases



DAQ Integration: FED Builder



- **New hardware components in 2004**
 - 2003 (TDR-Demonstrator):
 - FRL emulator based on GIII
 - Myrinet Lanai9 based FB network (2.5 Gb/s)
 - 2004 (bat. 32 and Cessy)
 - **FRL pre-series** (final prototype of FRL)
 - **Myrinet LanaiX** based FB network (each card has 2 x 2.5Gb/s)



Integration FB (2)



- Software (Firmware, driver, user library) had to be rewritten:
 - LanaiX architecture is completely different from Lanai9
 - Two 2.5 links have to be controlled (2 rails)
 - Driver is not anymore memory mapped (improves robustness)
- XDAQ Applications (FRLController and MyrinetRUI) had to be adapted to new Myrinet library.
 - easy task

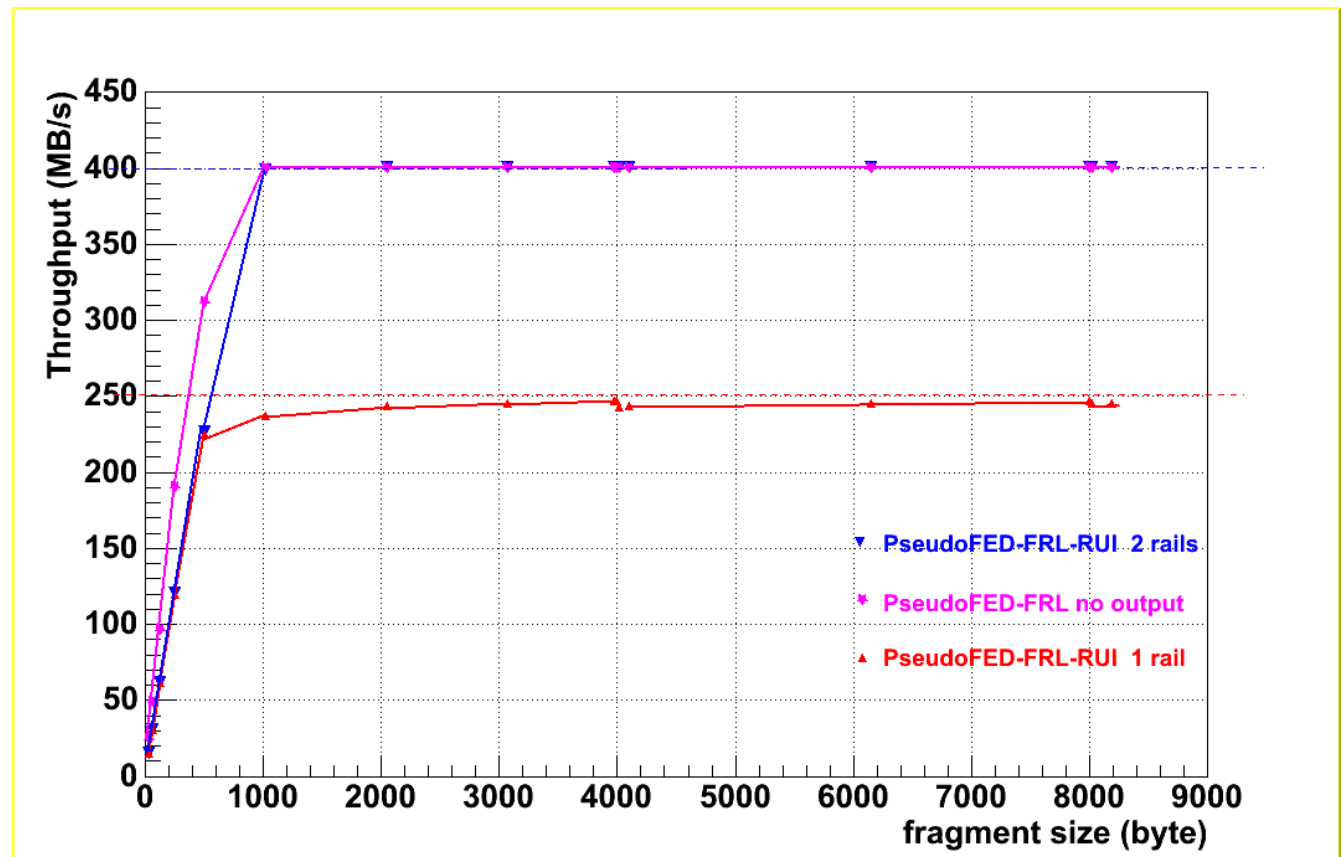


Integration status FB



- Done so far
 - FEDBuilder can be operated in column mode
 - Tested in Cessy with 1 and 2 rails:

- SLINK 64
- PseudoFED-RUI 1rail
- PseudoFED-RUI 2 rails





- Currently being developed
 - Credit scheme
 - Switch throws away data if traffic blocks for more than approx. a second --> data corruption
 - This must never happen --> need to implement credit scheme to ensure that never more data is sent than the receiving NIC can receive in its buffer memory.
 - Super fragment building

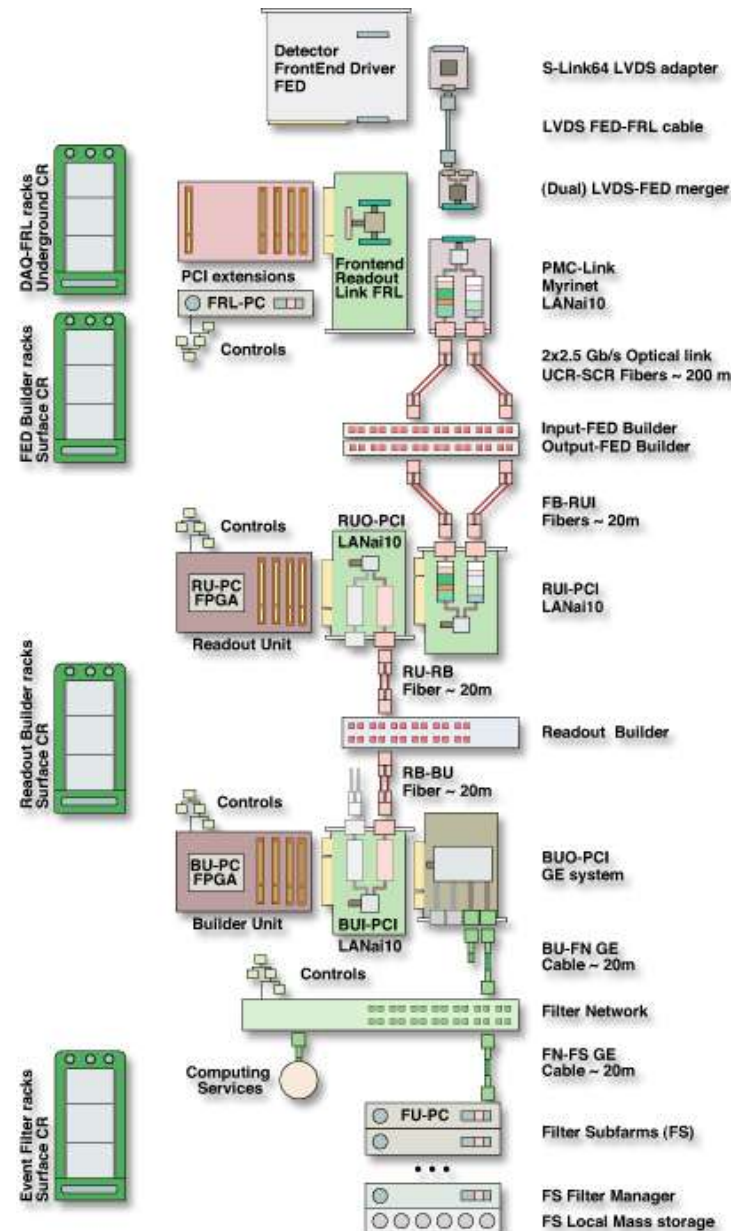


Integration GTP Emulator

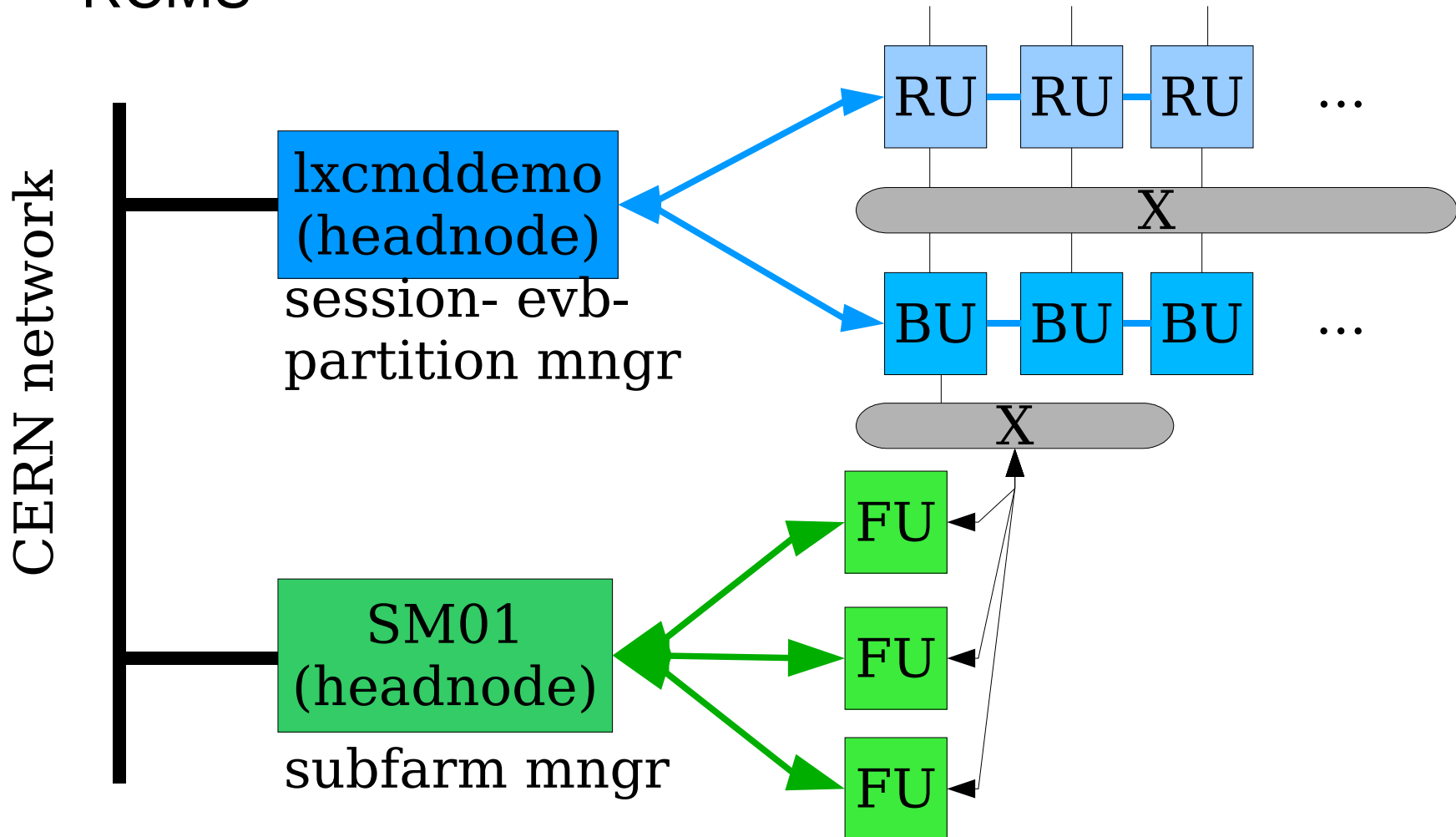


- **Hardware is available** (developed in Athens)
 - One module at CERN
 - Tested with HAL software and Fedkit software
 - Minor changes are being implemented currently in Athens (CRC calculation)
 - Documentation is being written
- **To be done**
 - Control software as XDAQ application
 - Integrations into RCMS system (GUI for setup)
 - Installation in Pre-Series and in bat 32.

- “Cradle to Grave”
 - Events with random data generated in 8 Pseudo FEDs.
 - FED Builder was operated in **column mode** (no super-fragment building).
 - 8x8 RUBuilder.
 - One BU connected to 8 FUs
 - FU write data to Pool.
 - **No trigger** (“saturation mode”)



- New complication: Independent control networks for RCMS

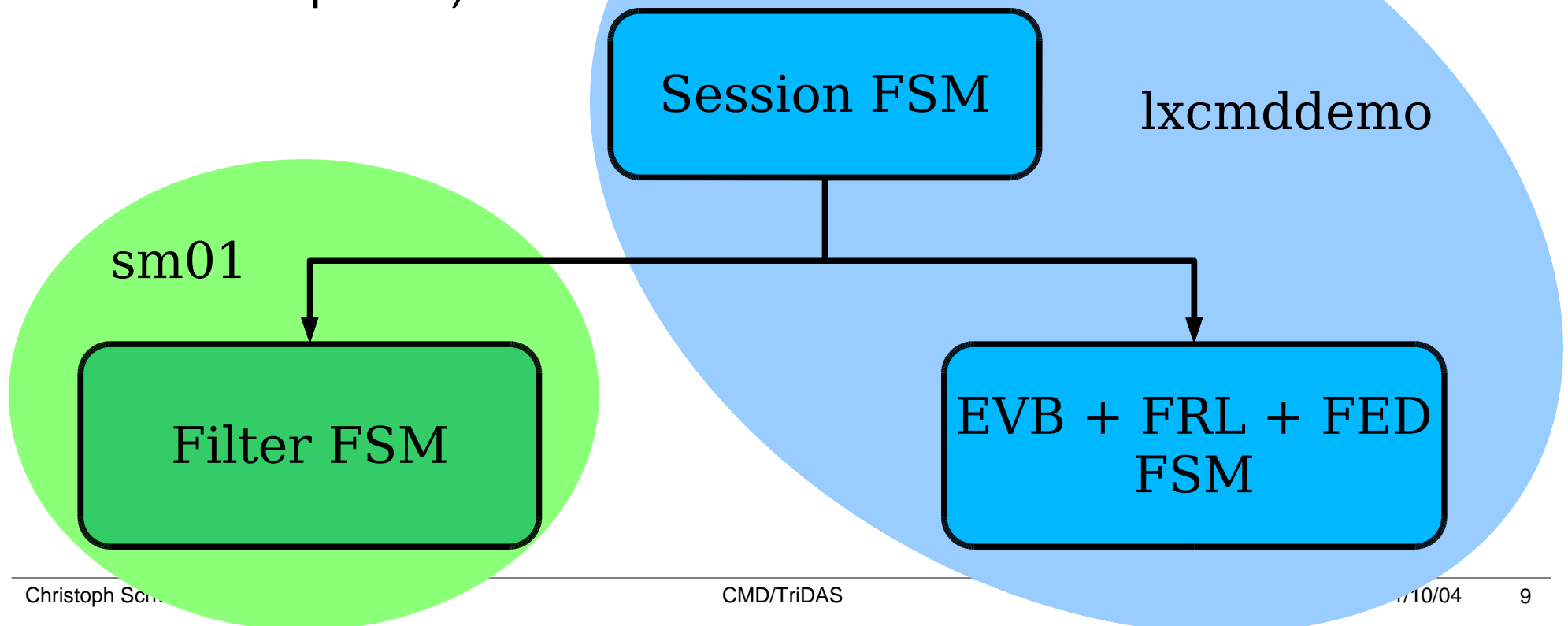




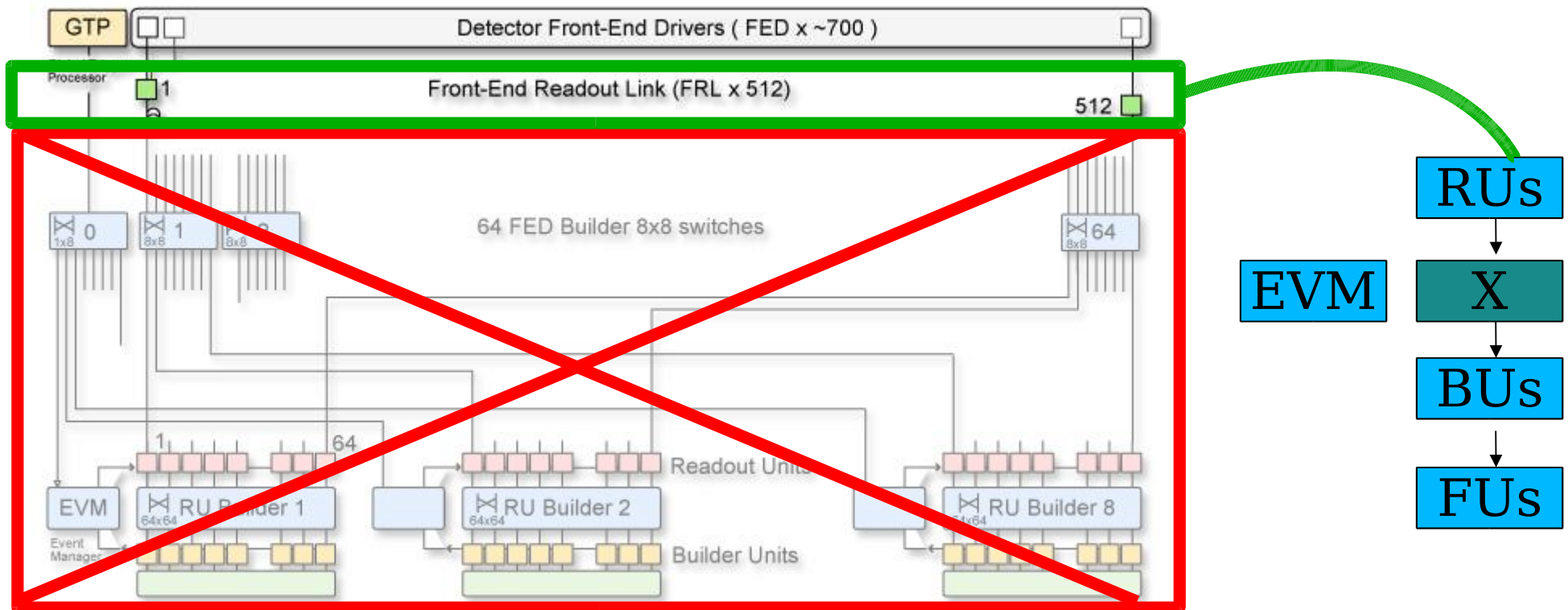
Integration FED to FU (3)



- FSM for Farm controller must run on different computer than Session manager and FSMs for EVB
- needs hierarchical FSMs in RCMs.
- needs distributed system (2 tomcat servers in 2 different computers)



- Read out entire CMS experiment at level of FRL.
 - Allows DAQ at low rate even if EVB is not available.
 - To be done.





Summary: Plans for next future



- **FEDBuilder**
 - Full FEDBuilder with credits and super fragment building in bat32 and Cessy on two rails until mid December.
- **Data sources**
 - RUI with simulated events (end november)
 - PseudoFED with simulated events (mid december)
- **New Components**
 - GTPemulator and FMM integration until mid March 2005.
 - Upgrade from 16 to 32 Pseudo FEDs. (Jan/Feb 2005).
- **Local FRL DAQ**
 - Until May 2005.



DAQKit: near future



- **Current DAQKit:**
 - Release for CERN Linux 7.3.3
 - Based on XDAQ 2.1
- **Next DAQKit release (version 2-x)**
 - For **CERN Scientific Linux**
 - Still based on **XDAQ 2.x**
 - New features (planned...):
 - example will be **compatible with FU**
 - (i.e. “SLINK-RUI” and TA generate FRL headers)
 - Will be **compatible (and contain) COSINE** release



DAQKit: near future (2)



- conted: new features
 - support for **optical VME bridge of CAEN** (in HAL)
 - **new version of RCMS** with a lot of fixes and improvements
 - **new version of JobControl** which is able to control FU software in COSINE
 - will contain XDAQ applications for DAQ group (FRL Controller, PseudoFED, MyrinetRUI)
- **Time of the release**
 - planned for mid - December



DAQKit: Plan



- After DAQKit 2:
 - release for XDAQ 3
 - Not this year