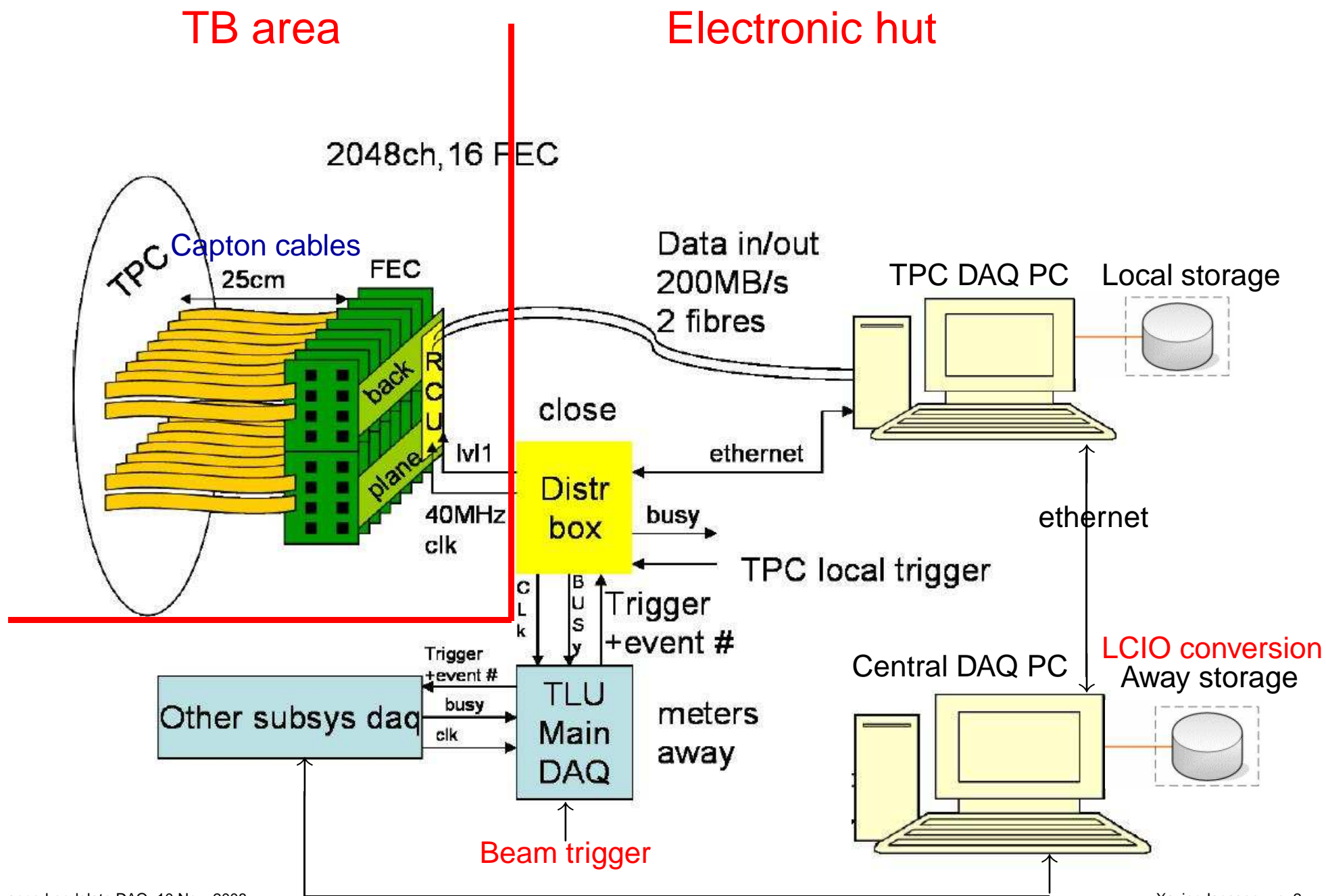




LP-TPC DAQ for Advanced Endplate

LCTPC Advanced Endplate Meeting, CERN, 10th Nov. 2008

ALTRO r/o: LC-TPC DAQ for Test Beams



Detector Interface

Detector Interface in ALICE r/o (and test beams):

- Detector side: Up to 32 FECs connected to RCU
- Data transfert: via optical link (+ trigger fiber)
- DAQ side: Computer farm with D-RORC receiver PCI-X card

... and for the Advanced Endplate:

- Advanced Endplate integrates FEC functionalities
- RCU functionality should fit with (on ?) the Endplate size
- Data transfert should integrate redundancy (see later)
- "Trigger" concept should be defined (see later)
- DAQ side: should be defined

⇒ Need to do all of above in line with CDAQ of future experiment.

Data transfer issue

Several possible technologies for the Advanced endplate:

- Gaseous detector + ADC electronic: ALTRO or AFTER
- Gaseous detector + TDC electronic: Rostock University
- Si detector: Timepix, Medipix, ...
- Other (yet unknown ?) possibilities

⇒ Need for a common data transfer protocol from the different frontend electronic to a common base DAQ electronic.

"Trigger" and data synchronisation tasks:

- Wake-up electronic before bunch train arrival
- Trigger data acquisition synchronous to bunch train.
- Flag data with bunch train number / some kind of ID.
- Put electronic in sleep mode after bunch train.

⇒ All this is part of a common data transfer protocol probably.

Redundancy issue: CALICE example

CALICE is building a DAQ architecture with redundant data path:

DAQ architecture



Detector Unit: ASICs

DIF: Detector InterFace connects

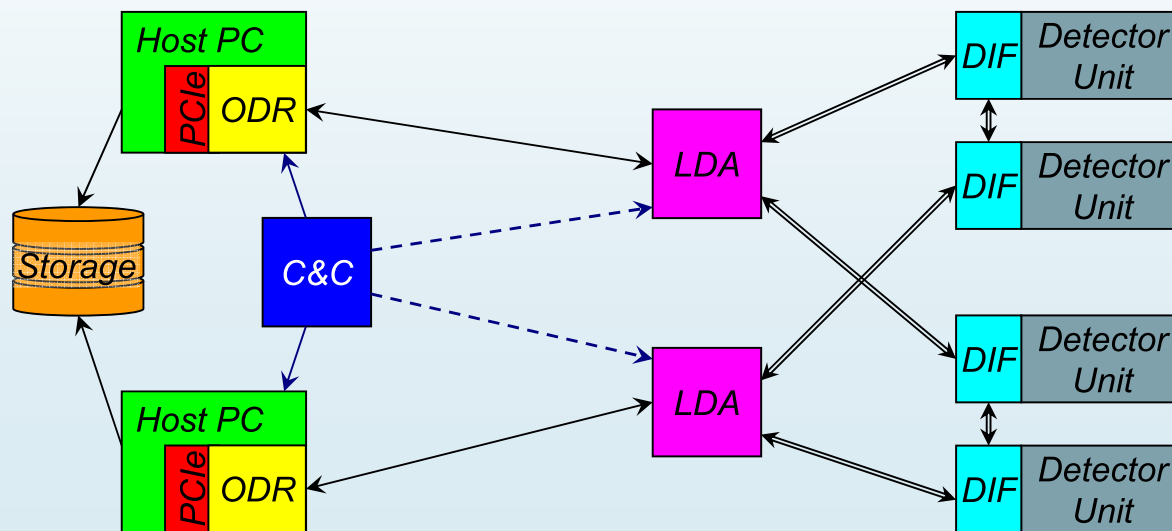
Generic DAQ and services

LDA: Link/Data Aggregator – fanout/in

DIFs and drives link to ODR

ODR: Off Detector Receiver – PC interface for system.

C&C: Clock & Control: Fanout to ODRs (or LDAs)



8 Oct 07

Matt Warren - JRA3 DAQ Overview

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The final TPC DAQ should also include a redundancy of data path to avoid the impact of intermediate electronic failure