Outline & Goals of the ETD/ Online Chapter(s)

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Issue: How to organize the ETD/ Online chapter(s)

- Would like to describe everything in the context of and with emphasis on a global system architecture
- Most components of the system have tightly integrated hardware & software components
  - Example "Trigger" L1 (Elex + Firmware), HLT (Software)
  - … making a split into Elex + TDAQ/Online quite unnatural
- Would like a global introduction to system design, design philosophy and common components
  - Don't want to replicate this between chapters
    - Would make it even longer …

Possibilities (1)

- Have an intro in either Electronics or TDAQ/Online, e.g.:
  - Electronics
    - System design
    - Common electronics (CFEE, Links, ROMs, ECS)
    - Detector-specific electronics
    - L1 Trigger
    - …
  - TDAQ/Online
    - ROMs + Event builder
    - HLT
    - Logging, control systems (including ECS)
    - …
- Could be reversed (TDAQ / Online first, then ELEX)
- Downside: most components will be split between two chapters

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Possibilities (2)

- Single chapter
  - BaBar TDR: ELEX+TDAQ in "Electronics" (ca. 16% of total paper, ~100 pages) plus Online in "Computing" (ca. 6 pages)
    - Progress Report approach similar by having a single ETD/ Online chapter
    - Note: SuperB Detector TDR will only have computing chapter "stub" (there will be a separate computing TDR later)
  - Downside: very long chapter
- Split in ~ 4 chapters
  - ETD/Online System Design Overview
  - Electronics
  - Trigger
  - DAQ/Online

Our Preference

- Proposed preference
  - Single chapter seems most natural
    - Depth of section hierarchy may be a problem
    - Length may be an issue
  - 4 chapters seems workable
    - … but somewhat of a kludge
  - 2 chapters seems to lead to either a lot of replication or unnatural splits
- Techboard suggestion:
  - Intro/overview chapter in the front with intro to the detector
  - 3 chapters ELEX, TRG, DAQ/Online

Editors & Page Estimates

- Editors: D. Breton, P. Branchini, S. Luitz
- U. Marconi
  - Subdetector electronics chapters to be provided by subdetector experts
  - Editors will ensure consistency
- Progress report: 17 pages for ETD/Online --- expect growth
  - Global systems: ~ 20 pages (more detail)
  - Trigger: ~ 10 pages (more detail)
  - Subdetector electronics (where does it go?)
    - Where are the boundaries?
- Will have more discussions this week

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Goal: TDR should describe an implementable system

- Define a baseline
- Deal with uncertainties / unknowns / future upgrades
  - Aim at implementation with existing components
  - E.g. data link implementation – assuming only 1GBit links are available
    - Specify reduced-performance baseline and its implementation and an upgrade path to nominal baseline – or –
    - Specify full-performance baseline (but larger # of links, larger cost)
    - Keep system upgradeable (e.g. modular components)