

Online Software

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Commissioning Working Group

DØ Workshop

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- **Objective:**
 - Define for you, the customers of the Online system, the **products** we propose to offer
 - Request feedback on:
 - priority
 - schedule
 - functionality
 - integrated operation

- **Outline:**
 - Quick comment on Online hardware status
 - Control path components
 - Data path components
 - Other components

Online Hardware Status

- **All of the basic Host components are available:**

- Host AlphaServer, Digital UNIX
- PC, Linux
- PC, NT

and many others are a network away:

- SGI

- **Future Host activities are to:**

- Achieve required I/O rates, CPU needs, reliability
- Build the Control Room
- Build monitoring farm(s)

Commissioning efforts (beyond rate tests) are not restricted by schedule for Host hardware installations

Online Hardware Status, cont'd

- **Front Ends are more problematic:**
 - **We now believe that we should replace all existing Token Ring based systems with the 'new' VME processor:**
 - **VME162 or PowerPC, VXWORKS, EPICS, Ethernet**
 - **Front Ends are intimately tied to specific hardware subsystems**
 - **Need to be purchased and installed as needed**

Need guidance on commissioning requirements

Component Lists

- **In the following, will attempt to list independent functions, applications, and/or systems**
- **There are hidden dependencies of these components upon either infrastructure elements or other components**
- **We believe these components can be considered to be the ‘products’ of the software effort**
- **Each distinct component is designated by a “»” bullet**

Control Path Components

- **Hardware control:**

- » EPICS access to VME address space
- » EPICS read/write to 1553 devices
 - » Low voltage supplies
 - » Rack monitors
 - » etc
- » EPICS control of High Voltage

Variants:

- *Command line, GUI, or
programmational access*

- **Hardware downloads:**

- » Detector specific code layered above EPICS control functions

Variants:

- *Specific or generalized (COMM_TKR)
applications*

Control Path Components, cont'd

- **Controls applications:**
 - **Specific:**
 - » **Alarms**
 - » **Clock**
 - » **Integrated High Voltage**
 - » **Gas systems**
 - » **Cryo monitor**
 - » **Liquid Argon monitor**
 - **General:**
 - » **Parameter Page**
 - » **Logger**

Variants:

- *Command line or GUI*

Control Path Components, cont'd

- **DAQ via Control Path (with DART):**
 - » Readout of VME crate via Front End processor to Host file; Host run control
 - » Parasitic event distribution and monitoring

Variants:

- ***Single or multiple synchronized crates***
- ***Internal or external trigger***

Data Path Components

- **Run and Configuration control:**
 - » **Trigger control and monitoring (TRGMON)**
 - » **Level 1**
 - » **Level 2**
 - » **Level 3**
 - » **Coordinated management and control of resources (COOR)**
 - » **Run control client interface (TAKER)**
 - » **Integrated DAQ monitoring (GLBMON)**

Variants:

- *Range of capabilities*
- *Command line or GUI interfaces*

Data Path Components, cont'd

- **Data handling:**
 - » **Data transfer from Level 3 to Host and logging to Host disk (Data Logger)**
 - » **File transfer to FCC**

Variants:

- ***Multiple instances***
- ***Streaming***
- ***Database recording***

Data Path Components, cont'd

- **Event monitoring:**
 - » **Front end data quality monitoring**
 - » **Trigger system data monitoring**
 - » **Parasitic access to data stream, distributed to remote clients (Data Distributor)**
 - » **Remote data clients (EXAMINE)**

Variants:

- *Detector specific functions*
- *Trigger selections*

Data Path Components, cont'd

- **Calibration:**

- » **Front End components**
- » **Trigger (Level 3) components**
- » **Host Calibration Server framework**
- » **Database storage / retrieval system**

Variants:

- *Detector specific functions*

Other Components

- **Accelerator interface:**
 - » Luminosity server
 - » Beam position server
 - » Control room console
- **Remote access tools:**
 - » Web monitoring tools
- **Control room functions:**
 - » Status screens
 - » Event display
- **Run 1 system (VMS) tools:**
 - » interim needs ???

Conclusions

- **There are many components!**
- **The Online group needs to be targeted at specific ones -**
 - to focus activity
 - to get user feedback on design
 - to get user participation in development
- **We need to learn how and when to integrate the various pieces**
- **Please consider these as the potentially available software components**
 - **Let us know what we are forgetting**
 - **Let us know when these pieces are needed**