ONLINE COMPUTING SYSTEMS GROUP (ONCS)

PHENIX SOFTWARE MEETING

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Outline

- **Overview of ONCS**
  - **main efforts of the last 6 months / next 6 months**
  - **present our current picture of how the system is going to look like for spring/fall 97 sector test**
- **Interfacing issues to ...**
  - **detector groups**
  - **other online groups (DCM, level1....)**

Overview of ONCS

- The system that ONCS is building can be characterized as
  - distributed object oriented system (CORBA)
  - use of Shlaer-Mellor object oriented methodology
    (but not in a strict sense)
  - objects are implemented as asyncronous state machines
    (example: DCM object that follows the states of the DCM hardware:
    booted - initialised - configured - downloaded - running)
  - languages: C, C++
  - EPICS has been choosen for ancillary system
  - VxWorks as real time operating system in VME

- Release 1.0 / 1.1
  - ONCS and TEC decided to work together for the spring 97 sector test (actually chain test)
  - TEC intends to use ONCS software for the testing of their chambers in the production process
  - Release 1.0 by January 97, release 1.1 for March TEC sector test
- Main effort for spring/early summer 97 is to get a DAQ system running that reads out <u>one</u> PHENIX subsystem (==TEC) from the FEMs to DCMs to Workstation (note: Timing system also needed)
- Main efforts of the past months have been in two areas:
  - Shlaer-Mellor OO models ("run control", single task running on UNIX that ties things (== distributed objects) together)
    will be invisible to the user
  - CORBA based communication mechanism: <u>how</u> distributed objects are communicating with each other

- **Possible presentations at this point:**
  - **Shlaer-Mellor OOA:**

    - how do we describe the dector

    - OO model of a prototype for the DAQ control

    - how OO models are translated into C++ code
  - **CORBA**
  - **data flow / data access**

    how does ONCS want to handle the data from DCMs to TAPE

Other activities not directly related to TEC chain test

– computer hardware

– participate in event builder evaluation:
(in fall 97 sector test, for the final system)

– databases (ONCS is favoring a OODBMS)

– ancillary systems

ONCS Interfaces

- Reactivate contacts between ONCS and everybody else

  Use of contact persons:

ED	:	TOF
JH	:	DC, PC, TEC
TK	:	MVD, MUTR, MTID
MP	:	PBSC, PBGL
CW	:	RICH, BB

  ONCS is trying to meet the detector liaisons one by one and discuss general interface issues with them (calibration procedures, startup procedures, code guidelines....)

- **WHAT DOES ONCS EXPECT FROM THE COMPUTER LIAISON?**
  - tracks ONCS development and gives ONCS feedback on impacts to his/her group
  - keeps ONCS informed on developments in his/her group that could affect ONCS
  - our hope is by personalizing these contacts they work better than in the past

Available information:

- ONCS listserver: phenix-oncs-l
  for ONCS minutes and ONCS related messages
- ONCS homepage

Sector Tests 1997

- TEC sector test in spring (for TEC only)
- Release 0.9 available for other detector groups (CODA based with extensions)
- sector test in fall 97 with several subsystems (in release 1.0 we do not handle multiple sub-systems [partitions])

ONCS Platforms

- Supported Platforms in 1997: SUN, SGI
- Supported Platforms beyond 1997: ?
  Sun is the main development platform (so it makes sense to buy Sun at this point)
- Predicting the future in computing is not possible, but ...
  - PHENIX will run for 10 years
  - It would be a mistake to assume we never switch platforms
  - Exciting things are happening at the PC level!
    - Cost - performance
    - PC running Solaris vs NT
    - Software for converting from UNIX to NT (eg NuTcracker...)
    - I am convinced the UNIX world will change dramatically over the next few years
  - ONCS decided NOT to invest any manpower into this <u>at this point</u>

Work Division between ONCS and other groups

- The details of work division varies from group to group, this is meant only as a general guideline.
- Every code should be developped in the same environment in which it will run (VxWorks, supported ONCS platforms.....)
- see general guidelines for user code (ONCS tn33)

Other Online Groups

- ONCS defines APIs with hardware groups
- hardware groups provide low level code for accessing the hardware
- ONCS integrates this code into the overall system

Detector Groups

- ONCS provides templates (see eg calibration proposal), but subdetector groups implement the details within the framework of ONCS
- detector groups are responsible for commissioning and calibrating their detector

- access to events:
  Done through the offline software (PEP(SI)), invisible to the user, looks like he/she analyzes a disk file.
  This is the only way to have access data on day1
  This means that as long as the detector code is developped within PEP(SI) on an ONCS supported platform, one is on the right track.

- **access to ancillary systems data (HV, LV...)**
  - **done through an ONCS API**
  - **ONCS fully supports <u>standard Phenix</u> choices, e.g. LeCroy HV**
  - **If detector groups are using their own ancillary systems equipment, then they are responsible not only for providing the device driver but also the integration into EPICS**

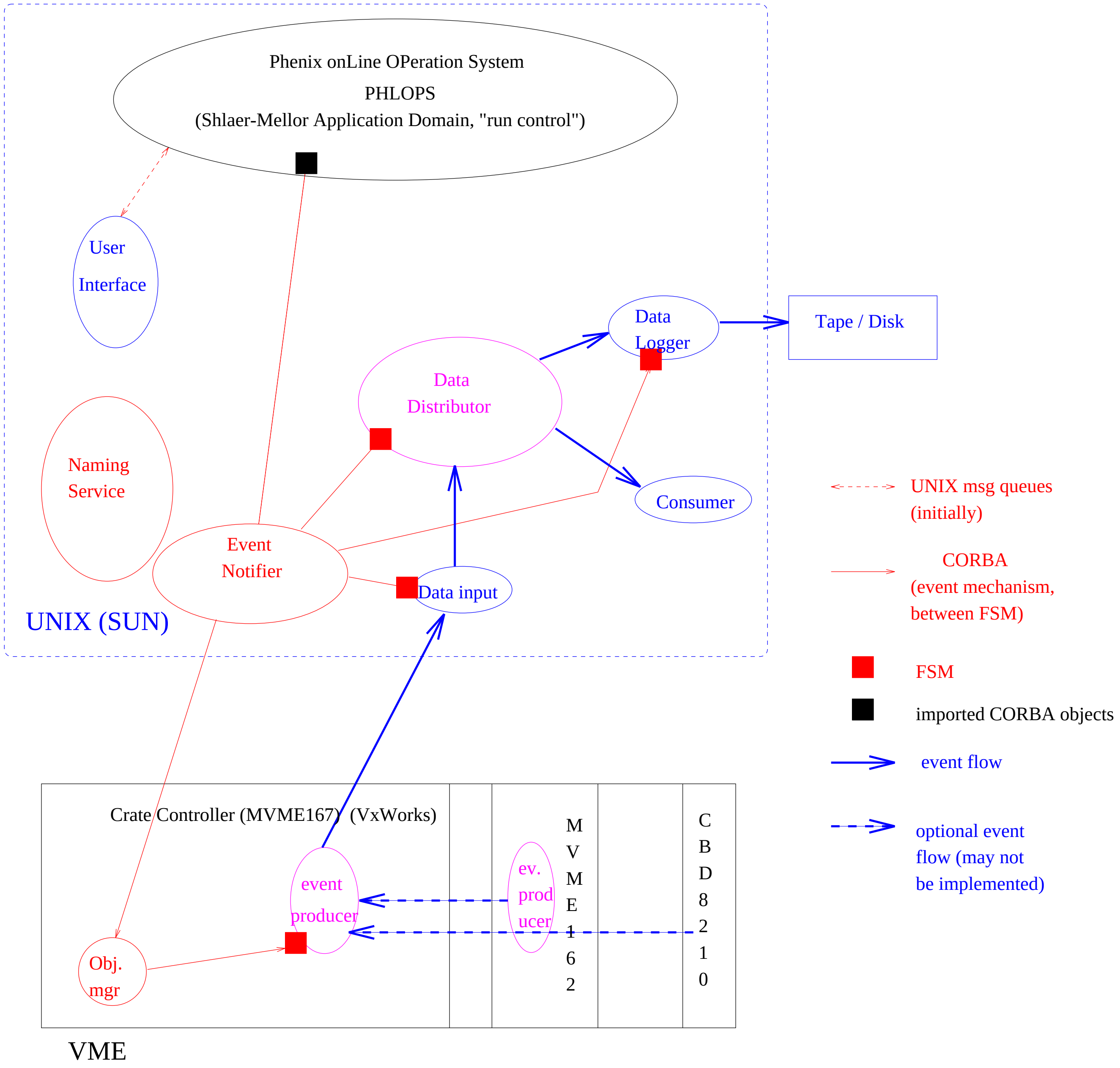

Figure 1: *Software layout for ONCS release 1.0*

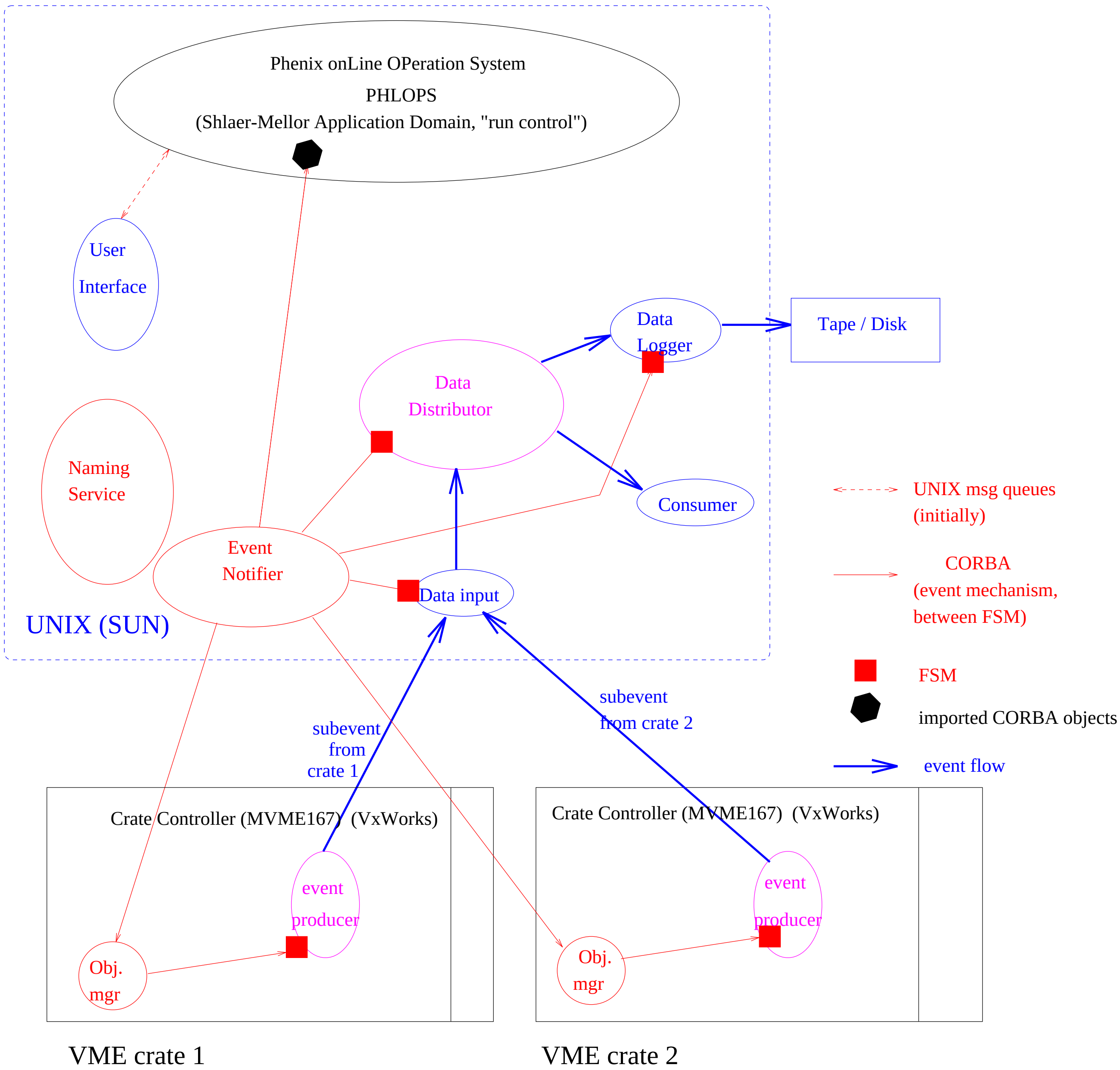

Figure 2: *Software layout for ONCS release 1.1 with no PHENIX TEC hardware*

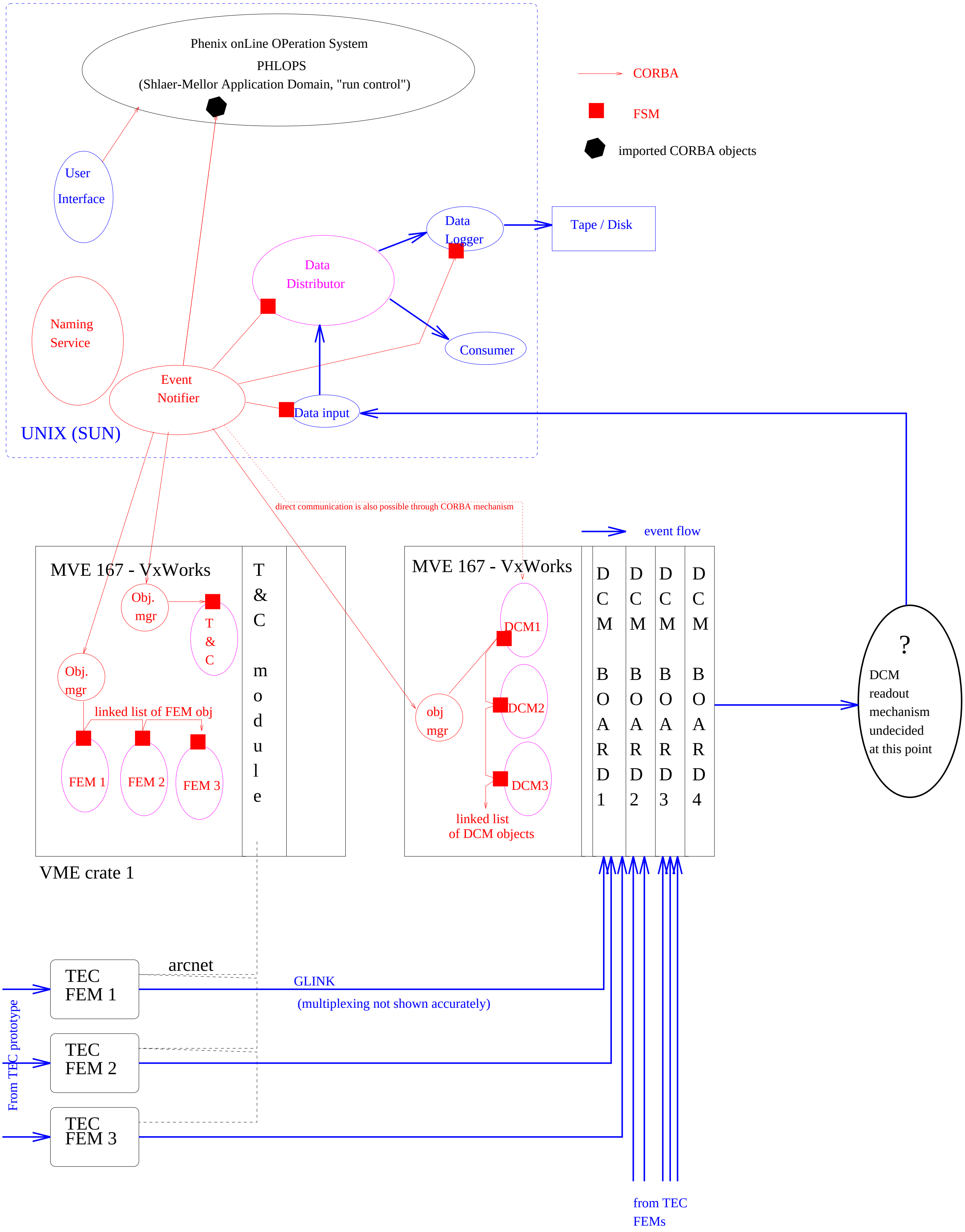

Figure 3: *Software layout for ONCS release 1.1 with PHENIX TEC hardware*