portion of the run summary is not produced by RCM, but by an 'independent' client of the RCM data service.

(6) The new system changed the message protocol with the components. Nevertheless, due to highly modular design it is able to talk to and control both the 'new style' and 'old style' ZEUS components; the latter will gradually disappear during 1995.

(7) The use of ZMP enables setting up of virtual but complete RC environments (including all the RC tasks), so that the whole system as well as the connections to individual components may be tested without disturbing the 'proper' RC system.

The whole development of the system took 4 months (September-December 1994), including 2 weeks for a reach operator's interface. The tools used included C++ (the central run control program), XDR (all protocol specifications) and Tcl/Tk (graphical user interfaces). What we obtained is a highly modular, portable, efficient and maintainable system which is sure to survive till the end of the ZEUS experiment.

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ABS_26



## The use of the SNMP (Simple Network Management Protocol) implementing Run and Data Flow Controls in the KLOE experiment

E. PASQUALUCCI (ROMA)
A. Doria(Napoli), M. Ferrer (Frascati), E. Pace(Frascati), W. Grandegger(Frascati)

The Simple Network Management Protocol (SNMP), proposed as a standard by the Internet Engineering Task Force (IETF), is largely used for the management of network devices, to obtain and/or set informations about network configuration, performances, faults, accounting and security. Managed objects are defined in a Management Information Base (MIB) by working groups within IETF, but extensions or proprietary MIBs are developed by vendors of hardware or software when their new products require them.

SNMP is implemented using a reliable UDP protocol with retransmissions, through a well defined UDP port. Every managed device activates at boot time a daemon that is able to understand SNMP requests, and to obtain or execute by dedicated agents, the information or action required.

A GIGAswitch from Digital is used in the KLOE experiment to concentrate data from different chains of VME crates, into a given processor in an Event Builder Farm. The Data Flow network map creation and test is implemented using SNMP applications. Private KLOE MIBs are defined to manage active processors in the DAQ system, and to implement Run Control messages distribution.

The general philosophy and some results, including response times and needed resources, will be described.

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