

CERN LHC TECHNICAL INFRASTRUCTURE MONITORING

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The CERN Large Hadron Collider will start to deliver particles to its experiments in the year 2005, however all the primary services such as electricity, cooling, ventilation, safety systems and others such as vacuum and cryogenics will be commissioned gradually between 2001 and 2005. This technical infrastructure will be controlled using industrial control systems, which have either already been purchased from specialised companies or are currently being put out for tender. This paper discusses the overall architecture and interfaces which will be used by the CERN Technical Control Room to monitor the technical services at CERN and those of the LHC and its experiments. The issue of integrating coherently existing and future control systems over a period of 5 years with constantly evolving technology is addressed. The paper also summarises the functionality of all the tools needed by the control room such as alarm reporting, data logging systems, man machine interfaces and the console manager. Particular attention is paid to networking aspects, so that reliable and timely transmission of data can be assured. A pyramidal layered-component architecture is compared with a complete SCADA solution.