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ASTRI Mini-Array On-Site Information and Communication Technology infrastructure

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The ASTRI ("Astrofisica con Specchi a Tecnologia Replicante Italiana") and Mini-Array project is a collaborative international effort led by the Italian National Institute for Astrophysics (INAF) for developing an array of nine 4m-class dual-mirror imaging atmospheric Cherenkov telescopes. These telescopes will be sensitive to gamma-ray radiation at energies above 1 TeV. The Mini-Array

is under construction at the Teide Observatory (Canary Islands). The ASTRI Mini-Array Information and Communication Technology (ICT) is distributed between the "on-site"(Teide) segment,

to support the development, installation and on-site operations of the ASTRI Mini-Array, and the "off-site "(Rome, Italy) segment for data archiving and user support activities (see the companion contribution at this meeting).
In this contribution it is described the design of the "on-site"ICT infrastructure, which includes various subsystems that can support various software components and how are foreseen all related implementations. The design of the virtual system for controlling telescopes, the data acquisition and data storage as well as the computing system are described too. All these components are connected together so a particular attention to the network topology is also given in order to guarantee nominal runtime together with the required data transfer throughtput to the off-site long term archive facility.
Finally, it is introduced and described the mini-ICT , which is a reduced version of main on-site ICT infrastructure, currently installed in the ASTRI-MiniArray site to ensure the preliminary operation and validation of the subsystems and technologies adopted for the first three telescopes installed, before the final ICT infrastructure is in production.
Finally the m-ICT has proved to be not only a workaround to compensate for the lack of the final ICT, but revealed to be fundamental in validation and testing of subsystems like the optical fiber network and Internet connection as well as the SCADA software integration.

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