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ASTRI Virtual Test Bed: from Prototype to Mini-Array

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Abstract:

The ASTRI (Astrofisica con Specchi a Tecnologia Replicante Italiana) program was born as a collaborative international effort led by the Italian National Institute for Astrophysics (INAF) to design and realize, within the Cherenkov Telescope Array (CTA) framework, an end-to-end prototype of the Small-Sized Telescope (SST) in a dual-mirror configuration (2M). The prototype, named ASTRI-Horn, is operative, being installed at the INAF observing station located on Mt.Etna (Italy). The ASTRI project includes the building of a mini-array of at least nine ASTRI telescopes proposed to constitute a pathfinder for the southern site of the CTA Observatory. In this talk we will see how the ASTRI Prototype testbed was organized and how the virtual system capable of hosting it was built. We will analyze the hardware architecture of the system and its components, to then see how this is used to create a virtualization system. This in accordance with the requirements of the ASTRI test bed. The ASTRI Prototype TestBed experience has been exploited to understand how to design a virtualization system capable of hosting the ASTRI mini-array TestBed. For the design of this system, we started from the study of a new Open Source Software: ProxMox. This software solves many of the problems we had with the previous OracleVM software. The choice of ProxMox has also determined the choice of the hardware architecture that we will see that can be realized in a very simple and economic way even respecting the necessary requirements of performance, redundancy and reliability.

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