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Towards the Einstein Telescope Computing Model

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The Einstein Telescope is the proposed European next-generation ground-based gravitational-wave observatory, that is planned to have a vastly increased sensitivity with respect to current observatories, particularly in the lower frequencies. This will result in the detection of far more transient events, which will stay in-band for much longer, such that there will nearly always be at least one transient signal within the detector sensitivity. Besides the technological challenges that an underground, cryogenic instrument poses, many current data analyses cannot be trivially scaled without the required computing power growing beyond reasonably available resources. Furthermore, the detection and characterisation of events needs to be carried out with the minimum possible latency to guarantee the timely distribution of public alerts for multimessenger science follow-up. The Einstein Telescope Collaboration is carrying out a series of Mock Data Challenges with the aim, besides developing scientific algorithms and techniques, to test and evaluate the technological components that will form the ET distributed computing infrastructure. The strategy is to iteratively evolve the tools available to manage data and workloads and get early feedback from the scientific user community, possibly on different, competing implementations offering the same functionalities. We will discuss the preliminary outcomes of the first Mock Data Challenge and plans for subsequent ones, and on the status of the preparation of the Einstein Telescope Computing Model in general.

Primary author: Dr BAGNASCO, Stefano (Istituto Nazionale di Fisica Nucleare, Torino)

Presenter: Dr BAGNASCO, Stefano (Istituto Nazionale di Fisica Nucleare, Torino)

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