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KM3NET's Detector Integration Assistant.

The KM3NET collaboration is building the largest undersea neutrino telescope in the Northern Hemisphere. It consists of hundreds of Detection Units (DUs) up to 800 m long, each housing a Base Module (BM) and 18 Digital Optical Modules (DOMs) totaling several thousand of these elements throughout the telescope.
This requires extremely careful management of the construction and testing phases of each BM and DOM.
This immense amount of work has led the collaboration to choose a distributed integration approach across many sites and laboratories internationally.
The KM3NET DIA (Detector Integration Assistant) is a full stack web application hosted by the INFN cloud that enables coordination and harmonization of all KM3NET laboratories and integration centers.
Since it is a web application, it does not require local installations and is designed to be accessible from a very wide range of systems.
The overall structure of the application allowed it to be applied not only to BMs and DOMs, but also to the Detection Units themselves as an integrated element.
THE DIA allows implementation of all the integration and testing steps necessary to build the component.
The central implementation ensures that all integration sites follow the same procedures.
Component construction data to calibrations are available to the collaboration via an interface application to the DIA's internal database.
In addition to this, the DIA maintains a detailed inventory of parts at each integration site and queries the KM3NET Central Database
for any components that do not meet the required quality parameters preventing them from being integrated.
The INFN Cloud hosts two versions of the DIA, the main one, at CNAF-Bologna, and another, at ReCaS-Bari, backup that is aligned with the main one every hour.
This talk will illustrate the structure of the DIA by showing how it can potentially fit into any large infrastructure.

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