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CODE-RADE a user centric software delivery system for science

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CODE-RADE is a platform for user-driven, continuous integration and delivery of research applications in a distributed environment. Starting with 6 hypotheses describing the problem at hand, we put forward technical and social solutions to these. Combining widely-used and thoroughly-tested tools, we show how it is possible to manage the dependencies and configurations of a wide range of scientific applications, in an almost fully-automated way, via constant integration tools harnessing docker instances and volume storage for the building and storage of the final applications, and delivery into cvmfs.
Due to the complexity and number both of scientific packages as well as computing platforms, delivering these applications to end users has always been a significant challenge through the grid era, and remains so in the cloud era.

The CODE-RADE platform is a means for developing trust between public computing and data infrastructures on the one hand and various developer and scientific communities on the other hand. Predefined integration tests are specified for any new application, allowing the system to be user-driven. This greatly accelerates time-to-production for scientific applications, while reducing the workload for administrators of HPC, grid and cloud installations together with the people maintaining the software. Specific examples will be given for the HPC facility in Cape Town and the distributed grid resources with in South Africa. Finally, we will give some insight into how this platform could be extended to address issues of reproducibility and collaboration in scientific research in Africa.

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